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NOVEMBER - DECEMBER, 1954

Whole Number 243

60th List of Fine Minerals

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ROCKS and MINERALS

PETER ZODAC, Editor and Publisher

America's Oldest and Most Versatile Magazine for the Mineralogist, Geologist, Lapidary.

Published Bi-Monthly

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CHIPS FROM THE QUARRY

MERRY CHRISTMAS! — HAPPY NEW YEAR!

The Editor extends to each and every one of our subscribers advertisers, readers and friends, a Merry Christmas and a Happy New Year. May 1955 prosper each and everyone of you abundantly, socially and financially is our sincere wish.

EASTERN FEDERATION
1954 CONVENTION & EXHIBITION

The 1954 Convention and Exhibition of the Eastern Federation of Mineralogical and Lapidary Societies was held at the Biscayne Terrace Hotel and Miami Municipal Auditorium at Miami, Florida, October 12, 13, 14 and 15th.

Officers elected for the ensuing year were:

Albert S. White, President
Flanders, New Jersey

Philip R. Cosminsky, Vice President
Falls Church, Virgina

Arthur Campbell, Executive Vice President
Washington, D.C.

Henry B. Graves, Secretary
Miami, Florida

James H. Benn, Treasurer
Silver Spring, Maryland

The 1955 Convention will be held in Washington, D.C., in conjunction with the American Federation Convention, at a date to be determined. J. Lewis Renton, President of the American Federation, of Portland, Oregon, attended the Convention and was principal speaker at the annual luncheon.

Seventeen dealers exhibited, coming from Alaska, Colorado, Arizona, Georgia, New York, New Jersey and Florida. An area of 2500 square feet was given over to working demonstrations carried on by members of the Miami Mineral and Gem Society, host to the Federation. This area was divided into six sub-areas of 250 square feet each which demonstrated faceting, cabochon making, silver craft, slabbing and sawing, and general lapidary work, and one area featured typical individual mineral collections. The jewelry making booth was operated under the auspices of the Lindsey Hopkins Vocational School. Many of the show visitors took advantage of the free instruction at most of these booths and many of them carried away completed gems, jewelry, paper weights, etc.

The Show drew an attendance variously estimated at between 35 and 50 thousand persons, with a continuously increasing attendance as the show progressed. Admission was without charge and results proved that a highly specialized show such as this still has great public appeal.

From the standpoint of sales, several well known dealers remarked that it was the best show they had ever attended and one remarkable feature of the show was the fact that the tremendous attendance was obtained without the expenditure of a single penny for local publicity. Remarkable cooperation was obtained from the Press which carried more than 100 column inches of pictures and stories. Television station WTVJ presented two 15 minute TV programs built around the collection of specimens, the cutting of

(Continued on page 625)

Puzzling Petrifaction

By FRENCH MORGAN

2601 Brentwood Road, N. E., Washington 18, D. C.

Photos by Ben J. Chromy

Prior to the development of Northeast Washington, the area adjacent to Rhode Island Avenue from North Capitol Street to the District line at Mount Rainier, Md., was a succession of hills and ridges alternating with deep gullies or ravines through many of which small runs carried water to the Anacostia River. These hills and ridges have now been leveled, in the main, with one exception, the exception being the hill between North Capitol and 4th St., N. E.

The ridges, in general, extended north and south. Our attention concerns the highest of these ridges having its beginning in Brooklyn to the North, and extending Southwesterly to Langdon and New York Avenue to the South. Since 15th Street parallels the ridge and cuts its Western slope, it will be called 15th Street Ridge for the matter of description.

The only highway serving this area in early time was Brentwood Road which had its beginning in Brentwood Village, Md., and followed closely the present Rhode Island Avenue as far West as 13th St., N. E. where it turned sharply South. This winding country road kept to high ground and crossed 15th Street Ridge through a cut 15 feet deep at a point about 200 feet North of Rhode Island Avenue, to intersect a like cut made by 15th St.

A large two story colonial residence with a four columned porch stood on a 30 foot hill at the point where Brentwood Road intersects R. I. Ave., until torn down in 1952, and the hill removed, to make way for a large modern apartment house. This house was erected before the Revolution, was of tamped earth construction, and the last of its kind to disappear from the Washington area.

When the Capitol Transit Co. built their line into Maryland the grade followed what is now Rhode Island Ave., from 4th St., to the District line. The deep cut through 15th Street Ridge at a point 200 feet South of Brentwood Road left banks 50 to 75 feet high, elevation being higher on the South side. Later on Rhode Island Ave. was paved, but litle building was done beyond 12th St. until after the close of World War 1. During 1920 things began to hum. Steam shovels attacked 15th Street Ridge to make room for two apartment houses, one on either side of the Avenue. In time all the Ridge to the South was removed and used to fill a 20 foot ravine to the East.

Excavation on the North side of the Avenue was much slower, and now at a standstill, due to the proximity of Brentwood Road at an elevation of 25 to 30 feet higher than the level of the Avenue. It is the writer's guess that nothing much will happen to this block until condemnation proceedings permit the abandonment of Brentwood Road between 15th and 16th Sts., a difficult process in the District. This block is now closed to traffic.

When soil was removed to make room for the apartment house on the North side of the Avenue, a very unusual deposit of brightly colored quartz sand, 10 to 15 feet thick, was uncovered. It is not known to what depth it extends below the level of the Avenue, but we have seen as much as six feet without bottom being reached.

The sand had been deposited layer on layer in a wavy or undulating fashion, as if based on small mounds or humps of earth. Among the colors displayed were white, various shade of yellow, pink, brown, dark red, and others. The bands were up to six inches in thickness, and showed no blending of colors at point of contact. To an observer from a passing street car or auto, the bank had the appearance of a giant size bottle of Painted Desert sands like unto the smaller size offered for sale along Western highways.

The sand bank was rather firm and

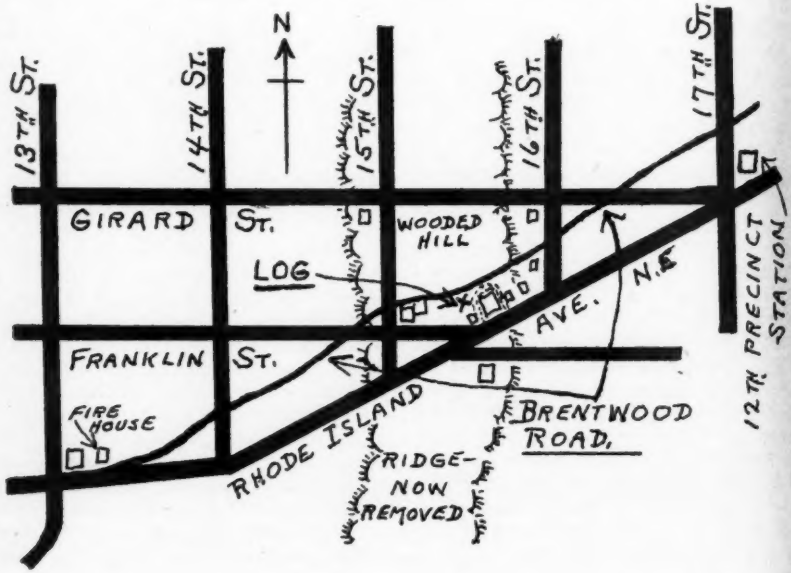
boys used it for years as a playground for adventure. Trails could be cut from cave to cave and fort to fort, at various levels; and many a battle was waged, the killed and wounded often rolling to the bottom to be rescued and carried away by friends.

During the years the sand was hauled away for commercial purposes until Brentwood Road was reached, and a halt called. But long before that time the colored sand gave way to plain brown or yellow, which is still to be seen. At the same time a halt was called to cave digging and war making because of the dwindling away of the sand bank. A three foot rough cobble wall now prevents sand and soil from depositing in the alley or driveway surrounding the apartment house.

This historical and geographical foreward has little to do with the petrified log found at this locality, but is furnished to serve the purpose of the geological and mineralogical approach employed by many professional writers. The geology and mineralogy of this section of the coastal plain and adjacent Piedmont plateau is well known and will not be discussed here. The attached map will give a better idea of the geography of the locality than the writer's best description.

We interested a fifteen-year-old neighbor boy in rocks and minerals to the extent that as he bicycled through the neighborhood he was on the lookout for specimens in road cuts and excavations, findings being brought to the writer for possible identification. One day during the latter part of August, 1949, he showed up with several specimens, one of which proved to be an odd looking piece of petrified wood. Inquiry revealed he had picked it up at the foot of the sand bank on Brentwood Road near Rhode Island Ave. and 15th St., the place of the colorful sands.

We drove to the place immediately, not more than half a mile from my residence, climbed 20 feet up the steep bank, and there was the log. A hurried survey disclosed the following facts. From the height of the bank on the north side of the Road, which had not been disturbed, the log was full 20 feet below the surface before soil was removed. The log appeared to be about 16 feet long, 18 inches in diameter at the base and 12 inches at the small end. The small end pointed West, was six to eight feet



South of the edge of Brentwood Road, three feet below the level of the road, while the butt end was three or four feet farther from the road and about five feet below the surface. The large end was buried in a white clay deposit resting on the sand, while the top end rested in yellow clay and limonite shale. For this reason the bottom end of the log was light brown in color while the top end was much darker due to limonite stain. These colors, however, were confined to the exposed or outer surface of the log, the color below the surface being a uniform light yellow or tan.

Had Brentwood Road been surveyed half a dozen feet south of the point selected, and the road bed lowered three feet, our log would have been uncovered 175 years ago and we would not be puzzling about it now.

Rain water coursing down the slope had cut channels and carried away the soil until all the top part of the log was exposed at about the same time, although it did not lay level with the soil. Near the center of the log a deeper channel had been cut and many fragments of the petrified wood had been washed to the level ground below. It was one of these fragments the boys had picked up.

This petrified log, which is cypress, and fairly soft, shows several unusual features not present in any other specimen the writer has seen or heard of. The first had reference to drusy quartz crystals. While drusy quartz is common in local petrified wood, in this instance nature outdid herself in that every particle of exposed surface is completely covered with crystals from microscopic size up to one-fourth inch long, many being doubly terminated.

The crystals are as unusual in color and appearance as they are for number. A test was made before it was determined they were quartz. The crystals have a muddy appearance and the microscope reveals that the colors is ont only on the surface but goes all the way through, being clouded or banded much of the time. When a specimen is moved under artificial light, reflection from crystal faces flash with the sparkle of a thousand twinkling **stars.**

The second unusual feature noted is that all the log did not petrify. In fact, but little of it turned to stone, since all fragments located and collected could be contained in three bushel baskets. A log 16 feet long and a foot through would measure greatly in excess of that.

FIGURE NO.1—Two unbroken pieces of petrified wood covered with drusy qtz. xls and double cone formation.

Petrifaction was not confined to any given part of the log but extended more or less through its whole length and diameter.

And this leads to the third unusual feature which may explain, in a measure at least, why all the log did not petrify. The log had been riddled by worm borings, aided to a small extent by grubs. This is not an unusual thing in itself, for other worm bored wood is found in the District, but again, as in the case of crystals, it is the number of borings present that is unusual. Things are said to take the line of least resistance, but not so in the case of these insects. It may be bug nature, but these borers always drilled across the grain of the wood instead of with it. Not a hole was found running lengthwise of the log. This may be the practice of land insects, just to be different from their brethren, the toredo of the ocean, that has no scruples in traveling in any direction.

It is our impression that none of the log would have petrified had it not been for these worm borings. Not a specimen has been found that did not contain at least one. The following appears to be a reasonable explanation.

Mineralized ground water entered the worm borings and thoroughly saturated the surrounding wood. It followed the cell structure an inch or so above and below the boring but because of the harder side walls did not penetrate more than a half inch on either side. This mineralized area and the worm boring then petrified while all the surrounding wood structure decayed. The result is that many independent thin bands or strips of petrified wood are found with a worm hole through the center, while in other cases the bands and horn-like effects are attached to larger pieces, which on inspection show numerous worm borings surrounded by petrified wood. This explanation would account for so many small complete specimens being found while the largest single specimen does not measure more than 18 inches long. Still other explanations come to mind, but like the above are merely guesses.

While specimens are not large, most of them, that were not already broken, came apart in the process of removal due to frail structure and the tenacity of the white clay. It appears that a considerable cavity was left by the decayed wood that did not petrify, and when the soil settled because of the weight of the over burden, parts of the log collapsed, as evidenced by one specimen that shows fracture with the annual rings meeting at an angle of 45 degrees. In the same way most of the bands or streamers of any length were broken from the pieces of wood and scattered through the soil in the log cavity. The break noted above was later cemented by a layer of quartz while one broken band was found on which quartz

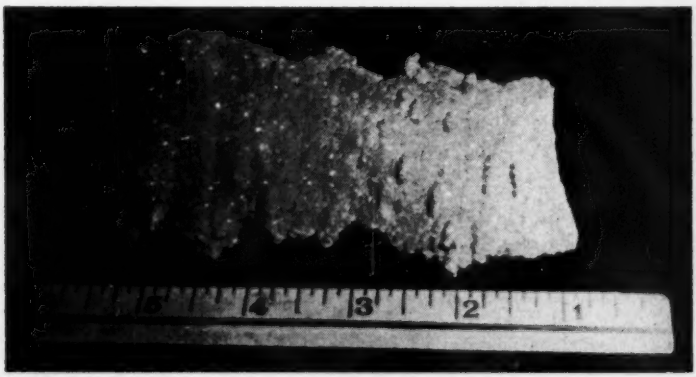


FIGURE NO. 2—Side view of a portion of a stringer of petrified wood containing a worm boring through the center.

had been deposited over the broken end, the dark worm boring showing through it.

Figure No. 1 shows two complete specimens of petrifaction. Figure 2 is a side view of a large band or ribbon with a worm boring running through it lengthwise. This band could have connected two pieces of wood. Then again, it may have been complete in itself, the end sections having been broken away and lost in the soil. Figure 3 is an end view of a ribbon, as shown in figure 2, and shows how the petrified wood formed around the worm boring. Worm borings are also petrified, usually light in color though a few are dark, as shown here.

Attention is now called to the final and probably the most unusual feature in this petrifaction. To date no one has been found who will even hazzard a guess as to the cause. For want of a better name we call it the double cone formation. The two specimens in figure No. 1 are masses of this peculiar formation. The cones are rather uniform in diameter, averaging one quarter of an inch, while in length they range from a half inch to as much as four inches. The average would probably be less than an inch. The larger ones resemble a thin lead pencil sharpened at both ends, while the smaller ones resemble two ice cream cones attached base to base. Figure No. 4 is an enlargement of the top piece of wood in figure No. 1, showing how the cones appear when in place. Figure No. 5 shows a detached cone somewhat enlarged.

In addition to those attached to pieces of wood, small double cones were found in the soil for the whole length of the log, even when no wood was found in a foot of them. It is probable that these cones were scattered when the soil settled, fracturing the wood; then again, they may have been formed without regard to petrifaction.

As the worm borings extend across the trunk of the log, the cone formations always run with the length of the log. The cones are formed around a hairlike filament, with crystals radiating outward from it. There is no execption to this rule. What relation these have to petrifaction is anybody's guess.

Several things out of the ordinary have been noted. First, it would be difficult to account for the large deposit of sand

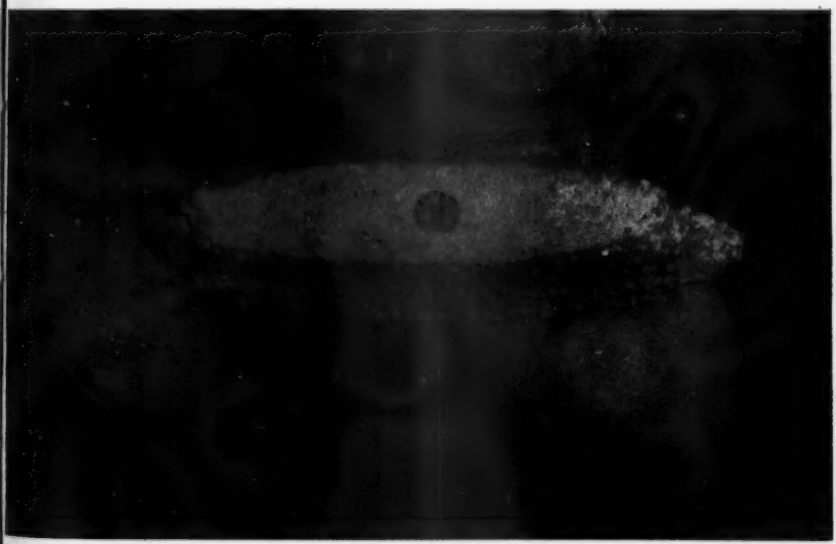


FIGURE NO. 3—End view of a broken stringer showing worm boring.

FIGURE NO. 4—Enlargement of upper specimen shown in Figure 1, showing cone effect.

in the middle of a ridge of hills—clay below, above, and all around, with no other such deposit in the area. A still tougher question is, how did the bright colored sands get there, a red band deposited on a white band, the white deposited on a yellow, etc., without being mixed—and did the sand obtain that color before being deposited? If not, what caused the color after being deposited?

The layman is stumped by these and other questions relative to the sand formation and its coloration, in the 15th Street Ridge, as well as by its unusual petrified log, and we surmise the ability of a geologist, mineralogist or a paleobotonist, would be taxed to the limit to arrive at a solution of the problems presented herein.

FIGURE NO. 5—A detached double cone, numbers of which were found loose in the soil in the log cavity.

HOW A WOMAN HOUSES HER SAND COLLECTION

By CHAS. S. KNOWLTON

143 N Acacia, Fullerton, California

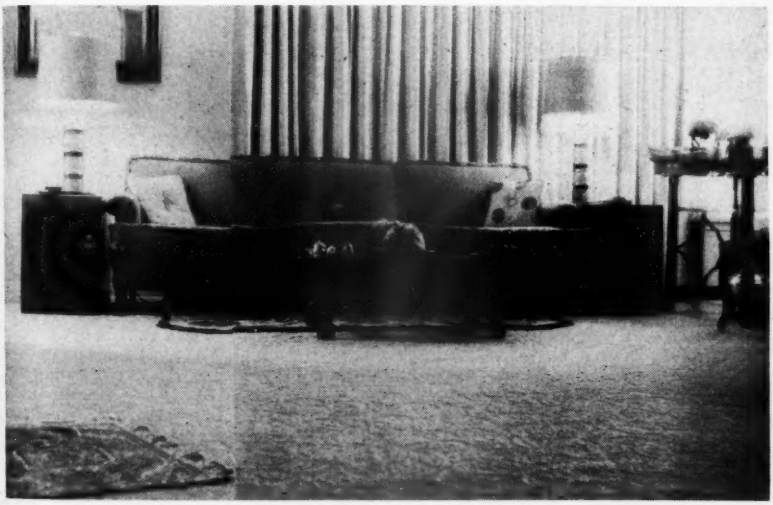
My March-April, 1954, copy of ROCKS & MINERALS arrived in a Thursday's mail. As I usually do, the first thing that I looked at was The Sand Collector, to see if Mr. Zodac tells of having received Garnet Sand from some correspondent. In this issue there were but two such sands, one from Saratoga Lake which I happened to have, and one from the Fiji Islands, which I did not have, but would like. It had been sent by Miss Winifred Arnold, of Long Beach, California.

I wrote her a letter that was posted on Friday morning and from her I received a reply in the Saturday mail in which she invited me to call to see her Collection of in excess of a thousand sand localities. Not being too busy that afternoon I drove about 25 miles to respond to the invitation. And I found two charming women to greet me, Miss Arnold who collects the sands and her mother who collects sea and land shells in considerable amounts, mostly small ones.

While I was considerably interested in both the collections I was nearly, if not quite, as much interested in the cabinets in which they are housed. One of the pieces of furniture in their living room is a davenport that has rather high ends and is fairly deep.

As they needed storage accommodations, Miss Winifred designed and had built three very clever cabinets, two to match the davenport and one to be in another room. Like nearly everyone else they thought they had built for all time, but collecting has been good with them and soon they will have to expand.

I expressed a wish that I could write an article about the cabinets so after my visit to them and before their visit to me Miss Winifred took some pictures and Mrs. Arnold drew some sketches that show them quite well. Each end cabinet, while a unit, has two compartments. Upon opening a door one sees fourteen shallow drawers, each with a hand hole. As the doors fit closely no dust can enter. Each drawer is just like every other of the four units, so they are fully interchangeable. If they have something that is too high



Miss Arnold's sand cabinets

Side view of back compartment

for a drawer, which they do have a few, they just leave out a drawer.

In the two cabinets two doors open front and out and the two side doors open out and back. The sands are kept in similar bottles, all labelled and numbered and arranged fore and aft so they cannot shift. The shell cabinet is of similar design, but larger and both doors open out.

I rather think that if the Arnolds keep on at the rate they have been going the last couple of years they will have to design more cabinets and they should also buy some stock in a bottle factory.

LOOKING BACK TWENTY-FIVE YEARS AGO

In ROCKS and MINERALS - September, 1929, Issue

The opal, beauty most maligned, by J. William Yates, Jr., pp. 103-105 An interesting article on one of nature's most beautiful gems.

Mineral localities of Colorado, by Edwin Over, Jr., pp. 106-107. Some localities of El Paso County were described by Mr. Over, who is still with us.

Quartz at Antelope, Oregon, by Dr. Henry C. Dake, p. 108. One of Oregon's famous localities was described by Dr. Dake.

Agate found in an old abandoned quarry, by Louis Reamer, p. 109. In an old abandoned quarry in Orange, N. J., some beautiful agate was found by Mr. Reamer when a wasps' nest was disturbed.

Compilation of gem names, by Gilbert Hart, pp. 116-117. A continuation of the longest list of gem names ever printed up to 1929.

Gem Department, conducted by Gilbert Hart, pp. 122-123. Zircon was featured.

Paleontology Department, conducted by B. T. Diamond, pp. 124-125. An illustrated article on gastropods was featured.

DONAX THE BUILDER

By PAUL M. TILDEN

Warner, New Hampshire

The connection between the early Spanish settlement of Florida and the limestone which is known in that state as "coquina" may be at first sight rather obscure, to borrow a term frequently employed by Sherlock Holmes.

But there is such a connection, and a very obvious one, when you consider that Florida is a state that was poorly endowed by nature with suitable stone for building purposes — indeed, without coquina, Florida would be a rather colorless area, from the point of view of most mineral hunters.

Anyone who has visited the Castillo de San Marcos in St. Augustine, that historic stone fortress that the Spanish commenced building in 1672 to protect their settlement at St. Augustine, knows that it is massively constructed entirely of coquina, of which a tremendous amount was used — the walls of this fort are anywhere from nine to sixteen feet thick; and the individual blocks were cemented together with lime mortar made by burning oyster shell. St. Augustine was, incidentally, the first white settlement in the United States.

This coquina is one of the most un-

Photo by Carver Harris

An aerial view of the Castillo de San Marcos at St. Augustine, Florida, massively constructed by Spanish engineers of the coquina of the Anastasia formation

usual forms of limestone that the mineral collector is likely to come across anywhere in the country. It consists to a large extent of broken-up and somewhat water-rounded fragments of one particular type of sea-shell, with a slight admixture of quartz sand; occasionally a whole shell-valve, may be found, stuck in the groundmass like a plum in a pudding. It may perhaps best be described as a shell-stone; and, in fact, the word coquina is the Spanish for a cockle or shell.

The shell-stone or coquina formation runs along a narrow coastal strip of northeast Florida for a good many miles — but the old quarries from which the Spanish took their stone for the Fort are located on Anastasia Island, just south of St. Augustine across the Matanzas River, one of Florida's tidal "rivers". The coquina has been quarried on this island to such an extent and for so many years that the geological formation which carries it has, aptly enough, been named the Anastasia formation.

One look at the coquina beds is sufficient to convince even the casual beholder that they must have been laid under rather special conditions; exactly what these were is a matter for speculation — but the coquina rock of the Anastasia formation had its inception in a series of beach-bars, which were deposited in rather shallow water at a time when the level of the sea stood some twenty-five feet higher than it does today.

There is ample evidence in Florida that the sea has encroached a number of

Photo by Carver Harris

Behind the sixteen-foot thick walls of the Castillo de San Marcos at St. Augustine, Florida, the Spanish defied all attackers. The walls are constructed of massive blocks of the Anastasia coquina rock, cemented by oyster-shell mortar.

times on the land area, and that these invasions were not in the too-distant past, as a geologist reckons time. Old beach lines, ancient sand dunes, and accumulations of marine shells all testify to the presence of the sea. The time of deposition of the coquina rock is referred to as Pamlico time by geologists, and the sea which inundated part of the Florida coast is known as the Pamlico Sea, of the Pleistocene epoch. This may be considered by some to be very recent — perhaps only five hundred thousand or three quarters of a million years ago, which is but yesterday as the geological clock shows us time; but the coquina rock is just as truly a limestone, and the shells which constitute it are just as certainly fossils as though they had been deposited on the floor of some nameless Pre-Cambrian sea.

Here and there among our present-day flora and fauna we find representatives of the earth's yesterday which have survived the changing conditions of their environment — the so-called "living fossils". Among these is *Donax* whose broken-up shells constitute a large portion of the coquina formation; today, the same shell is cast up on the beaches of the modern Florida coast even as it was cast up by breakers of the Pamlico Sea in the distant past.

A geological pamphlet dealing with this shell formation refers to it as being composed of "a locally hardened bed of fossil sea shells, mixed with variable proportions of sea sand." The pamphlet goes on to say that the Pamlico sea must have been "favorable to the growth of shellfish". Now it is appreciated that the professional geologist is a cautious man; he is not customarily reckless with words; and anyone who has followed these beds over their entire length realize the caution displayed in terming the Pamlico sea "favorable to the growth of shellfish." The number of shellfish living and dying in this small area alone must have been prodigious. It was a number that would have defied description by a Pleistocene Hollywood press agent.

This great mass of shell fragments was under no great overburden of other strata, and it is therefore very porous and uncompacted. It owes its coherence to the agency of percolating lime water which has loosely cemented the mass; and when first quarried, is rather soft and yielding, hardening on exposure to the air to the point where it becomes a valuable and quite permanent building stone.

The King's quarries — so called because of the King's inherent right in all material resources of his domain, back in the days when Kings really amounted to something — were also on Anastasia Island, but the lapse of time has concealed the old workings under a dense cover of palmetto, live oak and semi-tropical plant growth to such an extent that the casual tourist is not likely to be aware of the location without native advice.

The Castillo de San Marcos has a satellite fort, much smaller but also solidly constructed of coquina, a few miles south near the inlet of the Matanzas River, built to protect the main works at St. Augustine from attack from the rear. Fortunately, both these historic sites are national property — units of the great American National Park System — and are thus free from the shabbiness usually associated with private exploitation of America's scenic and historic treasures.

Coquina was not only used back in the earlier days in Florida; it is still quarried and used in present-day construction; and where the top of the beds have weathered deeply, the shell fragments are scooped up and used in place of sand in cementwork; it is a rare slab of concrete in the city of St. Augustine that shows no traces of these fossils. The city's handsome postoffice building and many of the older houses are built of blocks of this shellstone.

Thus it is that the humble mollusc *Donax* played a considerable part in the shaping of the history and economy of the state of Florida — and these forts are not only handsome monuments to the Spanish soldier-engineers of those swashbuckling times, but also monuments to a prolific little bivalve of the Pamlico Sea.

ADEN TO SUEZ

By COMMANDER JOHN SINKANKAS

EDITOR'S NOTE: This is the sixth of a series of articles by Commander Sinkankas about his collecting adventures while he is serving aboard a U. S. Carrier as Executive Officer. This ship, a light aircraft carrier, was enroute to the Far East where it spent considerable time and in doing so, visited many ports. We hope that you will find pleasure in reading these little episodes out of the life of a regular naval officer who follows the sea professionally but whose off-hours interest is the world of minerals.

The famous fueling port of Aden was visited in June of 1954, the ship anchoring in the protected waters of the inner harbor to take on black oil from a floating pipeline. We arrived early in the morning, took on a pilot, and by about 9 o'clock were safely tethered to buoys fore and aft. Only a short liberty period was granted because all ships of the task-unit had to be underway again in the afternoon to meet their appointed transit times at the Suez Canal.

Catching a boat ashore, I was able to spend several hours in this fascinating port which lay on the flank of a huge extinct volcano. The sun was merciless, and the dry still air did nothing to bar its rays or dispel the heat which bounced off the surrounding walls of the rocky valley and concentrated upon the white-washed town below. Conditions were bearable in the shade however, the rapid evaporation of moisture from the body cooling the skin efficiently. Wandering through the main street of the town, I heard the sound of chinking hammers near its end and directed my steps accordingly. In a short space of time I came upon a group of Arab workmen laboriously chiseling out the volcanic rock of the valley slope to make way for the basement of a new building. This is how it must be done in Aden —— there is no soil except coarse gravel upon which the town itself is built, anything else must have its room made for it by attacking the living rock.

A close examination of the rock showed typical volcanics, layer upon layer, interspersed with numerous cavities, gas pockets, and with a certain amount of mineralization in favored spots. Some white chalcedony was collected which had formed as thinnish films, not exceeding about ½", upon the walls of the cavities. Most of it had received a final coating of minute quartz xls which glistened and twinkled in the sun as the specimens were turned about. One fist-sized specimen of a basaltic rock was riddled with cavities filled with small, colorless, slender needles which may be calcite,—this was saved for friends at home who are micro-mounters. Careful attention was paid to detect the presence of zeolites but none were noted. Outside of the white chalcedony coated with drusy quartz, no other members of the quartz family were seen. A small boxfull of these rather handsome specimens was collected and brought back to the ship.

The possibility of cutting grade agates and jaspers appears excellent in Aden because of the volcanic nature of the peninsula upon which this port is located. The peninsula itself is about 15 miles across and bears ruins of almost forgotten civilization even including a fantastic fort erected by the Turks when they controlled the port, upon the highest of the prinnacles which rises behind the harbor. The conical stratification of the volcanic rocks is easily apparent from the harbor where they can be seen rising inland toward the pinnacles near the center of the peninsula. There is much variation in color which indicates a wide variety of outpourings from the long-dead volcano, possibly also with a wide variety of minerals. Unfortunately, the exploration of these will have to be left to someone else who seeks mineral and gem-cutting

specimens and who has enough time to do it properly. On the side of the peninsula toward Ceylon, the navigational charts show a well-defined caldera of another extinct volcano. Its perfection of shape indicates a far more recent death than that which befell the one immediately behind the port. Across the bay toward the north from the Port of Aden, a huge refinery is under construction by the British and while we were there, a number of enormous dynamite blasts were set off at some point near the construction. This area is also mountainous and the appearance of the pinnacles lead to the conclusion that they too are volcanic in origin.

Outside of agate and jasper, little is found of gem-cutting interest in volcanic rocks in the Red Sea Area except peridot whose finest quality has come from the tiny island of St. John (Zebirget) about half-way up the Red Sea. We passed St. John Island the day after we left Aden and I made it a special point to go up to the bridge at about 11 P.M. to observe it on radar, it being too far away for visual observation. The Red Sea was very hot at its southern end but it cooled steadily as we approached the southern terminus of the Suez. We anchored in the bay just at the mouth of the canal and waited for pilots to board and for a powerful searchlight to be rigged upon the stem of the bow. Since all of the transit is not possible during daylight, the searchlight is needed to illumine the sides of the ditch for the benefit of the pilot. A series of small buoys marks the navigable center portion of the channel with each being fitted with glass reflectors which glow when the light falls upon them.

The canal itself is impressive, mainly because of the beautifully tailored appearance of the banks which are paved with cement and stone to prevent erosion by ship's wakes. All of the formations exposed along the canal appear to be straightforward sediments very loosely held together. Whitish streaks were seen once in a while which may have been beds of gypsum but aside from these, the formations offer little of interest except an excellent view of the desert on the eastern shore and the Egyptian farms and towns on the western side.

The last part of the transit was made at night with the searchlight performing as advertised. We dropped off the light and sundry boats and pilots at the northern terminus where we pointed the ship for Naples, Italy, and steamed off into the calm and cool Mediterranean.

THE NANCY JANE MINE

By ALLEN GRAFFHAM

On a recent trip through the Tri-State mining district, accompanied by my younger brother, it was decided to take the tourist tour that is offered through the Nancy Jane Mine. Although I had been underground in many of the mines in the district, my brother had never been below ground. It was for this reason that we decided to take the trip.

After traveling to the bottom of the shaft in a metal cage and incidentally leaving collecting equipment in the car, we were informed that mineral collecting was permissible and that arrangements could be worked out with the mine operators for collecting for a longer period of time than is expended by the tourist tour.

While we did not collect much of interest since we were without proper equipment, we did see many interesting cavities of small size that certainly looked as if they could stand prospecting. I did recover a very fine bladed calcite group and my brother found a nice galena group showing implanted octahedrons on a cube.

The important equipment for prospecting here is as follows: waterproof footwear, geology hammer and chisels. A good strong battery powered light, safety helmet, and of course, plenty of paper for wrapping crystal groups. Should you pass through the Tri-State, I am sure you will find the Nancy Jane Mine a worthwhile stop. The Nancy Jane Mine is just off Highway 66 on the road between Baxter Springs, Kansas and Commerce, Oklahoma. The mine is located in Oklahoma.

THE QUEST FOR MINERALS IN AUSTRALIA

By WILFRED C. EYLES

Yermo, Calif., and Sydney, Australia

Few people are acquainted with far off Australia, the land down under as it is usually termed. Australia is a land of great contrasts, encountered no where else. The scientist is amazed everywhere he travels. Can you imagine a land where beautiful native flowers bloom from Orchids on down, and none have any perfume? Where the trees shed the bark, instead of the leaves? Probably the most beautiful plumaged birds in the world abound, in the north the Bird of Paradise, Lyre Birds, Cockatoos from black to white, also millions of the little Budgies or Love Birds, none have any song. Even the Swans are black. Then there is the strangest creature that inhabits our earth, a puzzle to science, this is the Platypus, which is neither Fish, Fowl, Animal or Reptile, its body is covered with nice fur, it has web feet, a duck's bill, lays eggs, and suckles its young. It is just as much at home in the water as on the land. Every child is acquainted with the Teddy Bear (The Koala) this is the original, a very loveable and harmless little creature, which cries like a baby if hurt. And a land where the bees have no sting.

This strange continent down under is a land of perpetual sunshine, and hospitable people, the land of The Southern Cross, which is not seen in our Northern Hemisphere. Australia is immensely rich in minerals and gems, locations and data regarding them will be dealt with in another article later.

There probably is no place in the world as intriguing as the Australian out back as it's called (The Bush) or out in the Never-Never Country. The hundreds of miles of lonelieness in every direction with no habitation whatever. During the day the bush is alive with thousands of birds, at sunset it's a grand and never to be forgotten experience, dozens of Laughing Jackasses (Kookaburras) come to roost, they perch on a dead limb of the highest tree and see who can laugh the loudest, their laughing can be heard for miles in the great stillness. The Cockatoos gather by the hundreds and screech till bed time, kind of finishing up the the day.

Now it is dusk, and a new crew will come to take over. Right where you were looking come several kangaroos, they hop and stop to look around, then approach closer, if it had not been for their plop-plop you never would have noticed them, as they just appeared from nowhere.

Now it is dark, and it should be termed black, for you can hold your hand in the front of your face, and you cannot see it. Many Australians have become lost going outdoors with no light to guide them back. Your beds are made up, everyone sleeps outdoors in the bush, or in tents. But that bush is no place for timid souls or tenderfeet at night, as the myriads of birds went to roost, this new crew arrives to take over for the night shift. Strange sounds emit from all sides, dull plop-plop of the marsupials, and some are real close bye; You ask your Aussie Pal, what's that? He informs you its only Wombats or Wallaroos and some others. A distant howl, dog-like is heard, he tells you that's a Dingo, an animal very similiar to our Coyote, only somewhat larger, then there is an unearthly screeching going on over in a small meadow, you are told they are Curlews, a night bird getting into the act. You are assured everything is perfectly harmless and friendly, as he dozes off, and you who have slept out in the stillness of Death Valley, The Tonto Rim, slopes of the Rockies and on our vast and numerous deserts hundreds of times, this night racket with wierd sounds is strange and new. You only at last fall asleep from weariness, as the bush creatures carry on. Daylight comes, and they are gone. The Laughing Jackasses see to it that you do not sleep in, for at daybreak there they are laughing their heads off, and after getting it off their chests, fly away to carry on whatever Laughing Jackasses do during daytime. For I never heard them

laughing only at sundown and daybreak.

We have a hearty breakfast of steak and eggs, then pack up and are off in the Jeep for our mineral locality quite a distance yet. The road is dirt and dusty with washboard frequently encountered, small settlements in due time are reached, where supplies are to be had and your Aussie Pal just has to have his beer served at the bar in the local hotel.

Obtaining mineral specimens in Australia is a much different undertaking to what it is in the United States. Here we have good roads to almost every known spot. You have good roads and gas stations also accomodations all along the route. Even in remote areas, civilization and populations are never far away.

After you leave the large Australian cities, you start to thin out the population, and you do not travel far till you are right out in the bush. Towns are very small and usually far apart, out on the plains distances are great, huge acreage exist of the sheep stations, some are hundreds of miles apart; and travel in these parts are from sheep station to sheep station, the thin population of the out back does not warrent paved roads. Overseers and managers of the large sheep stations have planes to commute to the large cities on business, Mines too are all out back and to reach them one has to be fully prepared much more so than in the United States. Gasoline and food may be hundreds of miles away, if one runs out of gas or food, a sheep station which I may add is an institution will try to be reached. Road maps all show these stations. At these huge sheep stations one is always welcomed with the finest hospitality, one is treated like a long lost brother, an American especially gets everything in the book, bedded down, and dined with the best, the gasoline replenished, also rations as they are called there. The station officials are insulted if the traveller asked how much he owes.

TO BE CONTINUED

Short Notes on Franklin, N. J.

The collection of the late Lawson H. Bauer of Franklin, N. J., has been purchased by the Smithsonian Institution and Harvard University on a 50-50 basis. Dr's. Frondel & Switzer were in Franklin Aug. 2-7 packing the collection.

Mr. Bauer left a large amount of material about Franklin minerals, analyses, unpublished descriptions, notations of one sort or other. When cataloged these papers should make interesting reading. Messers. Frondel & Bauer were working on a new publication (a supplement to Palache's Franklin Minerals). It is believed that this work will be completed. A paper describing manganese-dolomite from Franklin is in press.

The Franklin mine has been closed. The property and buildings are for sale—about half the Franklin force will be retired and about half will be moved to Ogdensburg where operations will be stepped up. A new 2500 foot shaft has been sunk behind the ore body in much the same way the Palmer shaft is behind the ore body at Franklin. The present buildings and shaft will be removed.

A child was killed this Spring as parents hunted minerals on the Buckwheat Dump.

Vermiculite Is The Secret of Paul Bunyan's Strength

For years, men have puzzled over the secret of Paul Bunyan, the legendary giant of the Northwoods, and Babe, his pet blue ox. Just recently, a Windsor Locks, Conn., lumberyard, gave its answer to what Paul was made of—vermiculite plaster.

The lumberyard built a 14-foot high model of the giant and the ox to help celebrate the town's 100th birthday. Using vermiculite plaster reduced the weight 66 per cent below that of a comparable sand plaster model.

Paul Bunyan and Babe now grace the front entrance of the lumberyard, reminding customers what the "giants in those days"—and today, too—are made of.

Entire Issue Equally Interesting!

Editor R&M:

Enclosed is $3.00 for renewal. Cannot afford to be without R&M. I would not care to pick out one section as being more interesting, for the entire magazine from cover to cover is equally interesting. It should be in the hands of everyone who is interested in collecting.

Roy M. Fitts
39 E. Elm St.,
Yarmouth, Maine

Oct. 23, 1954

World News on Mineral Occurrences

Items on new finds are desired. Please send them in.

Abbreviations: xl—crystal xled—crystallized xline—crystalline fl—fluoresces ph—phosphoresces

ALABAMA—A note from William M. Johnson, RFD 6, Knoxville, Tenn., informs us that an oolitic limestone has been quarried near Rockwood, Franklin Co., Ala.

ARIZONA—Small purple amethyst xls with red vanadinite xls and coming from the Red Cloud mine (about 30 miles N. of Yuma), Yuma Co., Ariz., have been received from Earl U. Mayer, 1733 "I" St., Yuma, Ariz.

The following item, received a few weeks ago, comes from R. A. Richards, Box 44, Morristown, Ariz.

"Just a short note to advise that good 'fire' agates are still to be found at the Saddle Mt, Maricopa Co., Ariz., location. The best of these compare favorably with most 'fire' opal. Although this field has been quite thoroughly gone over during the past 2 years, there are still very good fire quartz specimens to be found—apparently an iridescent iron has flowed into the crytocrystalline in the making. This type specimen is found, also, in California and old Mexico, to my knowledge. Will give directions to this location just in case you wish to place it in 'World News on Mineral Occurrences'.

"Taking Wickenburg, Ariz., as our staring point, travel Highway 60-70-89 south to Litchfield cut-off south of Wickenburg. This is an all-paved Hiway connecting with Hiway 80, via Litchfield and Luke Air Base. Shortly after passing the Air Base you cross Southern Pacific tracks where you contact Hiway 80. Cut-off is right hand turn and marked 'Luke Air Base'. The turn is again to the right, on Hiway 80. Follow 80 to small place called Hassayampa (service station and store) which is about 6-miles or so, west of Buckeye, a fair sized town. At Hassayampa, just past the service station, a gravel road takes off, to the right. Here you leave the pavement. It is 22 miles from this point to the field. Just after crossing a very small cattle guard you will see where many cars have turned off, to angle up Saddle Mt. The fire agates, as well as good red and white color combination cutting material, will be found parallel to the mountain, for 3 miles. The gravel road is a county road, usually fair except after heavy rains. At the old 'ghost town' of Winterburg you are only a few miles south of Tonopah where gas, oil, water, etc may be obtained, in case of emergency.

"In making this trip in winter months, never carry less than 3 gals. of drinking water; 5 is better if more than two in party. Be sure to check oil, gas and water at Buckeye, as the Hassayampa station is not always open. Summer months—from May 1st to Oct. 15th, I advise staying out of this district unless you have a desert man along. Be glad to answer any questions."

ARKANSAS—In his letter dated Sept. 17, 1954, Byron C. Marshall, 204 Central Ave., Hot Spring National Park, Ark., sends in this item:

"A friend sent me samples of Indian artifacts, mostly scrapers and knives. The interesting thing about a number of them is that they were made from water-worn pebbles. Three or four show working (chipping) but are interesting in that they had not been completed into an artifact for some reason. These are from 6 miles east of Mer Rouge, on Bayou Bowie Idee, in Morehouse Parish, in extreme northeastern Louisiana. They range in color from light tan to dark tan, greyish, reddish and black. Most of them are undoubtedly different textures of novaculite,

from quite chalcedonic, not so chalcedonic (jasper—like), and the coarse quartzite-novaculite texture. A few are rather cherty. Most, if not all, undoubtedly have their original source from the southern mountains of Arkansas where the novaculites today are found over a vast extent in place. In many of the past geological periods, this same novaculite was weathered out and broken down, washed and distributed over much of the area that was the ancient gulf coast over a tremendous period of time, long, long, ago. Thus these novaculite pebbles are to be found over most of the old gulf coastal plain of southern Arkansas, Louisiana, and undoubtedly they extend into Mississippi. Too, intermingled, is a scattering of chert pebbles from their original source which is the chert lumps embedded in the vast limestone sections of northern Arkansas and southern and central Missouri. In coastal plain of northern Arkansas and along most of the rivers are tremendous deposits of chert gravels. In southern Arkansas in the coastal plain section and along the rivers are likewise tremendous deposits of novaculite pebbles (gravel). Of course, both north and south coastal plains and streams thereto, have pebbles to some extent of several other types of rocks."

CALIFORNIA—Some few months ago Thomas D. Lane, 1253 Glenn Ave., San Jose, Calif., sent us a sample of epsomite (white fluffy mass in a vial). The sample came from the Oak Hill mines of Santa Clara Co., Calif. The following is taken from his letter which came with the sample:

"Even though the mines are nearly 100 years old, the ancient tunnels provide a paradise for the student that can read nature's great story in the rocks and minerals. For the collector are natrolite, lepidolite, cinnabar, calcite, olivine, bitumens, and so on. I am sending you some epsomite from there.

"The white mineral (epsomite) I am sending you can hardly transport the thrill it gave me when after several trips into the dead end gopher tunnels, dripping and muddy, I walked into a winter wonderland of glistening whiteness, delicate tufts bristling from floor, ceiling, walls —the 'Seven Dwarfs' never had it so good!

"Then imagine my sadness as my least breath cleaned them from the walls. I began, like a thief, brushing the crystals into vials. After picking up my doomed specimens, and with one last look, I returned to the mud."

COLORADO—Pat Fancher, Ouray, Colo., sends in the following item, dated Aug. 28, 1954.

"In your Mineral Occurrences column you sometimes have to reach for material. I submit the following for a filler, if and when you want it.

"In a 'cave' (big vug) filled with soft sericite, I found galena xls. They were a brilliant silver-white from one inch down. Near the wall they were crushed to powder. A little further in they were tarnished and blistered, as if subjected to great heat (post mineral movement). The blisters were hollow. Only the tarnished xls had blisters. Most were perfect cubes but some were modified by the octahedron. Found in the Lark mine, San Juan Co., Colo."

CONNECTICUT—We are indebted to Horace Winchell, Associate Professor of Mineralogy, Yale University, New Haven, Conn., for the following item, dated Sept. 7, 1954:

"Mr. W. P. Reid of Hartford, Conn., recently brought us a most interesting specimen of amethystine quartz with wulfenite crystals from the old amethyst locality north of Canton Center (Hartford Co.). Conn. The tiny (half-millimeter or smaller) square tabular crystals are associated with limonite, on the surfaces of the quartz crystals. So far as I know, this is the first occurrence of wulfenite to be reported for the State of Connecticut."

The following item, dated Oct. 3, 1954, comes from Richard Schooner, Box 215, East Hampton, Conn.

"Good garnet and staurolite crystals occur near Diamond Lake, in E. Glastonbury (Hartford Co.), Conn. The best place for collecting is on a hillside where rock was blasted out for a pipe-line."

DELAWARE—Fossil crabs have been found in the clays and marls dug out of a dredged canal at Summit Bridge, New Castle Co., Del., so we have been informed by Leonard A. Morgan, 217 So. Atlantic Ave., Haddonfield, N. J.

FLORIDA—Charles Dahlenberg, 2223 S. W. 57 Ct., Miami 44, Fla., sent us recently some samples of drill core that came out of an oil well located in the N. W. part of Dade County, Fla., due west of Miami and near the Monroe County line. Among the samples was gray gypsum that came from the 15,000 foot depth; gray limestone with small masses of white gypsum which came from the 14,000 foot depth; another sample from the 14,000 foot depth consisted of gray limestone coated by a thin crust of colorless selenite (gypsum). An especially interesting specimen was a ¾ inch gray gypsum cabochon cut from the sample coming from the 15,000 foot depth. This is a nice gem stone and may be a world's record—found 15,000 feet below the surface of the earth! Has any reader a gem stone that was found deeper? If so, we would like to hear about it.

"This well is producing," writes Mr. Dahlenberg.

A map showing the exact location of the well came with the samples,

GEORGIA—The following item is taken from Georgia Mineral News Letter (Published by the Georgia Geological Survey (Dr. A. S. Furcron, Editor), 425 State Capitol, Atlanta, Ga.).

"Tourmaline is a very common mineral in the crystalline rocks of Georgia where it is found in well-formed black crystals in pegmatites and quartz veins. Another common occurrence is produced by closely interlocking crystals to form a black massive-looking specimen. An unusual variety was brought into the Georgia Geological Survey recently by Dean H. Baxter, Marble Hill Hotel, Rockmart, Georgia. These specimens are completely massive and dense, the tourmaline having a microfibrous texture so that the hand specimens have a silky lustre. These samples were obtained from Land Lots 612 and 649, 19th District of Paulding County."—Spring 1954 issue, page 48.

IDAHO—"I am sending you samples of my newest find and hope you like them. The deposit is located on the Idaho-Montana line. We call the new find the Idamont. This new find is near Gilmore, Idaho, in Lemhi County."—letter dated July 28, 1954, from Clarence Martin, R 3, Blackfoot, Idaho.

Three minerals were received. One was a yellowish, semi-translucent mass of aragonite which should take a beautiful polish. Another consisted of small, black platy lustrous hematite xls with tiny smoky quartz xls, greenish garnet (grossularite), and white calcite. The 3rd consisted of small black tourmaline xls (all fractured) in whitish granite.

ILLINOIS—"Made another find for your column over Labor Day. 'Millerite'. The wife and I were over near Fort Madison (Iowa) cruising around after having picked up about 2 dozen good geodes when we decided to come home. Crossing the river (Mississippi) we entered Niota (Hancock Co., Ill.) where we decided we needed gas and a refill on our water jug. While filling up a fellow standing near by mentioned he blasted out several geodes I could have by going to his farm. This was good news and very little work for me and so we proceeded to take the gentleman home and reap the harvest. It was only a short trip and the blasting proved to be for a dam to hold back water for some cattle. Having driven the car up to the geodes which were good, by the way, we talked for a while and started to leave. Some calcite in the broken xls was laying around and the wife had picked up a small but nice specimen. As we started down the hill the sun's rays brought forth a golden glint and I mentioned that some pyrite was in the calcite she had picked up. Suddenly the wife exclaimed, 'Millerite,' and I came to a sudden stop. I suppose the farmer thought us crazy but I turned around and went back to the dam. It didn't take us long to find the source. In a cavity about 6x10" in the limestone wall, approximately 4' up, there it was. Some of it had been

fractured by the blast and lay like a golden bird's nest at the bottom. However we salvaged two pieces about 3x4" and the rest came out in fractured segments. Today I shipped out most of it to my fellow rockhound friends and I hope they like it. I know they will send me good cabinet specimens in return. Mr. Gordon ViGario of California is one of them. Well so long for now, Ed. I'll keep lookin and reportin."—letter dated Sept. 7, 1954, from H. E. Chelf, 219 Hendryx Lane, Peoria, Ill.

INDIANA—Turkey Lake, in Lagrange Co., Ind., contains a thick deposit (45 feet) of marl.

IOWA—"Our new shop is located just one mile from the well known Muscatine gravel pits in Muscatine Co., Iowa. It sure is surprising how touring rockhounds from all over the United States stop there and expect to find agates by the bucketful. This is due to the 'Armchair Mineralogists' who have published in other magazines such silly articles about the Lake Superior agates being so abundant in these Muscatine gravel pits. Actually these agates are quite small, two inches is considered a large one, the ones that are found will average an inch or less. Also you are lucky to find more than ten in a couple of hours of hard looking and perhaps one out of ten will be a cabinet specimen. However these agates are just perfect for tumbling and they come out simply beautiful and because they are so hard, they polish out much sooner then the average tumbling rocks.

"Another interesting fact is that these agates are not surface finds except where the big gravel pumps deposit them. And the present supply of agates are being pumped out of deposits between 50 and 60 feet below the surface of the ground level where they are scattered with the gravel which is being pumped out.

"I think that rockhounds should know these facts because it is a shame how some of them travel miles out of their way to stop and look for agates and then leave so disappointed."—letter dated Aug. 24, 1954, from Irving W. Hurlbut, RR 6, Muscatine, Iowa.

KANSAS—The following item, dated April 5, 1954, was sent in by Miss Nora Lee Dennett, 242 S. Young, Wichita 12, Kans.

"Rock City, Kansas, is a geological oddity located about 3½ miles S. W. of Minneapolis, Ottawa Co., Kansas. Sandstones in the Dakota and Kiowa formations of the central part of Kansas have many large concretions which are the result of calcite cementing. The largest of these are at Rock City, some having a diameter of 20 feet. There are nearly 100 of these giant concretions at this location and I have spotted a few isolated ones in a nearly straight line to the south of Rock City, along Highway 40 west of Salina, Kansas. The particular sand samples sent you were taken from the roadway leading to the large concretions. Both colors were found under the same cap of solid rock."

KENTUCKY—Pyrope garnet has been found in a peridotite dike on Iron Creek, Elliott Co., Ky.

LOUISIANA—Red earthy coatings of hematite on massive brown limonite have been found in a gravel pit in Section 36 of Grant Parish, La. A nice specimen was received from Louis F. Rodrigue, Raceland, La.

MAINE—E. L. Sampter, 49 W. 45th St., New York 19, N. Y., sent in a clipping relative to a huge deposit (said to be the largest in Maine's history), of gem quality tourmaline. The find was made in North Norway, Oxford Co., Maine. No date appears on the clipping but Mr. Sampter's letter is dated Aug. 27, 1954. The clipping reads as follows:

The largest find of gem tourmaline in Maine's history, was made by mica miners in North Norway, according to Everett Greaton of the Maine Development Commission, this week.

A deep pocket of the semi-precious stone was uncovered by a blast in the B B Mine No. 7, owned by the T C Mining Co., Stanley Perham, West Paris, is president of the company and Willard Titcomb, Portland, vice-president.

Six thousand carats of green gem crystals have already been taken from the

pocket, Greaton said. One stone weighed one hundred carats, the pocket about two feet wide, has been explored to a depth of five feet and the end has not been reached.

Values of stones will "run into many thousands of dollars," Greaton reported.

The company's business is the mining of mica and caesium, both used in electronic manufacturing. The tourmalines were found while a vein of mica and caesium was being followed.

The following item, dated Aug. 23, 1954, was sent in by E. E. Fairbanks, 44 Carll Ave., Old Orchard Beach, Me.

"Dundee Dam, North Gorham-Windham (Cumberland Co.), Me. Large crystals of orange microlite. Had previously found poor crystals brown in color but this new find was much better. Also a 200 lb. mass of spodumene containing unaltered blue bladed kyanite. A small mass was green in color but definitely not of gem quality."

MARYLAND—White massive barite has been found loose in soil near Union Bridge, Frederick Co., Md.

MASSACHUSETTS — "During the summer of 1947 a roadcut along Route 128 was blasted in the granite of the Wolf Hill section near Gloucester (Essex Co.). Mass. I was there at the time and opened up a few smaller cavities on the north side of the eastern end of the cut. The following minerals were found at that time and reported in *Rocks and Minerals:* pyrite, psilomelane as coatings, limonite pseudomorphs after siderite xls, fluorite, siderite, smoky quartz xls up to 8 cm., hyalite (fluorescent), microcline xls many of which had an overgrowth of albite xls.

"A year ago I collected more material at the site and found small xls of rutile and xls of rhodochrosite. Since this species is not a particularly stable mineral it might be assumed that the heavy coatings of manganese oxide had its origin in the manganese carbonate."—letter dated Oct. 22, 1954, from Gunnar Bjareby, 147 Worthington St., Boston 15, Mass.

MICHIGAN — The following item, dated Sept. 20, 1954, comes from C. O. Gettings, 2001 Starr Ave., Toledo 5, Ohio.

"At Napoleon (Jackson Co.), Mich., are two sandstone quarries. A talk with the owner of Ray's quarry revealed the fact that workmen sometimes find imprints of tracks of pre-historic animals. We looked for about 30 minutes but were unsuccessful.

"At Athens (Calhoun Co.), Mich., the drinking fountain on the main corner is made of cement imbedded with flint arrowheads. Many, I would swear, are made of flint from Flint Ridge, Ohio. None of the flint nodules found in Michigan are so highly colored."

MINNESOTA—R. W. Nutting, Rt. 2, Box 17, Osseo, Minn., has found some brown petrified wood pebbles along the Mississippi River in Sibley Park, Mankato, Blue Earth Co., Minn. One of the pebbles was sent R&M.

MISSISSIPPI—Large trunks of petrified wood have been found in the hills near Potts Camp, Benton Co., Miss.

MISSOURI—A. A. Castile, of Associated Miners, 6972 Sheridan Rd., Chicago 26, Ill., sent in the following item:

"In the sink deposit iron district of Missouri there are mine dumps loaded with a variety of interesting specimens and some cutting material. Moselle Mine No. 9 south of Rolla (Phelps Co.), has specular and other varieties of hematite, amethyst, pyrite, chalcopyrite, arsenopyrite and other minerals.

"Most of these old dumps are, however, hazardous. The shaft at Moselle 9 at my last visit was 200-300 feet in diameter, possibly 100 feet or more deep, nearly filled with water and caving constantly. The last ore taken from this location was pyrite mud. Consequently the water is diluted with sulfuric acid—strong enough to eat the nails out of boots if it is not rinsed off.

"Rolla, being the home of the Missouri School of Mines, is a good location from which to obtain directions to any of the old mine properties of the vicinity. It also is district headquarters of the U. S. Geo-

logical Survey and the Bureau of Mines, both of which have interesting minerals and processing exhibits. The museum at the school, however, is one of the most important in the country from a practical mining standpoint."

MONTANA—Lead gray flakes and plates of molybdenite occur in quartz veins near Dillon, Beaverhead Co., Mont.

NEBRASKA—A chalky limestone, soft enough to be sawed into blocks when freshly quarried but which on drying becomes hard, so it can be used as a building material, has been quarried at Hebron, Thayer Co., Nebr.

NEVADA—Lustrous black coatings of graphite on joint faces of red realgar have been found in the Getchell gold mine, 30 miles north of Winnemucca, Humboldt Co., Nev.

NEW HAMPSHIRE—C. F. Marble, Buckfield, Me., sent in the following item, dated Aug. 31, 1954.

"Early in August, 1954, Orman McAllister of Lovell, Me., went to a large gravel pit in Passaconaway, N. H., to dig for smoky quartz xls. These were rather rough, doubly terminated xls of short chunky habit but some were a clear coffee gem material weighing up to 5 lbs. It was a hot day and he looked around for a shady spot where he could eat—then he went back and the first shovelful brought up a topaz xl. He got a cigar boxful of fine wine colored topaz xls, mostly fine gem stuff and up to 2 inches in diameter; one weighed 10 ozs. Apparently the bulldozer had raked into the top of a pocket in the rotten ledge.

"I was there the next week and got a few—then in another week I went again and found they were about cleaned out.

"It was as far as I know the best topaz find since the Fisher in 1933, and before that a Baldface pocket in 1897."

A 2nd letter, dated Sept. 16th, from Mr. Marble reads:

"Passaconaway is just outside of Conway (Carroll Co., N. H.). You go about ¼ mile past the R. R. station, turn left, through a covered bridge, turn left again, go about one mile and take dirt road into the gravel pit (right). There are said to be occasional specimens of mixed quartz and feldspar xls as well as the topaz (which seemed to have come from one pocket).

"It was a 'once in a lifetime' for me.

"The pocket was lined with albite which partly covered some of the topaz xls.

"The Fisher locality is in Topsham, Maine. The Baldface find (near North Chatham, N. H.) was one of several found by Edgar Anderson who made the original find."

NEW JERSEY—The following letter, dated Oct. 1, 1954, comes from Vincent Giordano, 29 Cross St., West Orange, N. J.

"Enclosed find clipping from the Fri., October 1, 1954, issue of *Newark Evening News* of Newark, N. J.

This will be a hard blow to mineral collectors. It may mean the ending of collecting at Franklin, N. J.

"With the passing of West Paterson and now Franklin there not too many localities left in New Jersey. I thought you might like to put this notice in R&M."

The clipping reads as follows:

FRANKLIN MINE CLOSES

Deposit of N. J. Zinc finally exhausted after more than century of operation.
Staff Correspondent.

FRANKLIN—The New Jersey Zinc Co. mine here, which has operated more than 100 years, terminated operations officially at 3 p. m. yesterday when the last shift of miners punched the clock.

Walter F. Evans, company superintendent, said the last bucket of ore was hauled from the mines at about 2 p. m.

Evans said about 100 men, miners and workmen from different company holdings went to work this morning at clean-

up and some dismantling jobs.

SUPPLY DEPLETED

The end of an era here came about after the ore supply, which perennially had been predicted to be exhausted, was finally depleted. Company officials said they exhausted explorations and possibilities for further mining.

The mine had provided employment for hundreds of persons since the turn of the century and had been this borough's industrial and tax mainstay for years. More than 75 million dollars in payrolls had been turned into this community in the last three decades alone, company officials said.

The closing of the mine, which had been called the richest zinc deposit in the world, will not mean the end of zinc mining in this area, however. Plans are under way to expand company operations through a new 3 million dollar shaft at the Sterling Mine at nearby Ogdensburg. The Sterling Mine is expected to be put in operation in January, 1956.

NEW MEXICO—Southwest Developers, Box 881, Abilene, Texas, sent in 2 minerals recently collected. One is a beautiful specimen of bladed pale bluish-green kyanite in massive smoky quartz. It comes from what is called 'Big Rock' about 10 miles N. W. of Petaca, Rio Arriba Co., N. Mex.

The other specimen is a black-green-blue cabochon material which is a schist contact with pegmatite. It consists of white feldspar, greenish quartz, black columbite, silvery muscovite and a tiny bit of bluish chrysocolla. Its locality is north of La Madera, Rio Arriba Co., N. Mex.

NEW YORK—Egbert McElroy, prop. Monroe Mineral Store, RFD 1, Monroe, N. Y., sent in the following item, dated July 22, 1954.

"One of the workmen on the Quickway (new highway) was here and told me they had found some large pyrite cubes in the rock cut back of the Galaway bridge (near Monroe, Orange Co., N. Y.). He did not collect any but I told him to find some and bring them over."

Paul M. Popovich, 124 Lincoln Ave., Leechburg, Pa., in his letter dated Aug. 29, 1954, says:

"Just a note to let you know of an interesting find.

"On my recent visit to Chittenango Falls (Madison Co.), N. Y., for blue celestite, I found a large boulder with 3 different types of xls. One was a dark blue heavy chisel type; another, the single very thin tabular xls on end; but the third was the most interesting. These are the heavy chisel type xls, very pale blue, and upon closer examination, I find that they are hollow. The xls are perfectly formed, about ½ to ⅝" long by ¼ to ⅜" in diamater with the wall thickness about 1/32". It was evening when I stopped there and not having too much daylight left, I found two good specimens to bring home. One I passed on to Howard Hamilton of Vandergrift, Pa., to add to his celestite collection, and the other I will keep in mine."

NORTH CAROLINA — Orville M. Hewitt, Colonel USA Ret'd, 6 East Forest Road, Biltmore Forest, Ashville, N. C., has sent R&M a boxful of minerals. Among the specimens was a grayish cleavable mass of moonstone (feldspar) from Roan Mountain, Mitchell Co., N. C. Another was a platy mass of silvery muscovite in which was embedded a flat xl of red almandite (garnet)—its locality is Cat-Tail mine, Yancy Co., N. C. Still another consisted of black chromite xls in brownish dunite (olivine) whose locality is Democrat, Buncombe Co., N. C.

NORTH DAKOTA—S. T. Parke, Sterling, N. D., sent us recently a specimen of petrified wood which he collected just south of New England, Hettinger Co., N. D. It is a rough mass consisting chiefly of dark gray chalcedony—parts of the chalcedony fl. orange under the Mineralight.

OHIO—Our good friend, C. O. Gettings, 2001 Starr Ave., Toledo 5, Ohio, sends in some more news items. In his letter dated Sept. 14, 1954, he reports:

"A small specimen of pyromorphite was found recently on the dumps of the old quarry at Silica (Lucas Co.), Ohio. I believe this is the first for this district.

"Trilobites. While not a fossil collector I never can resist picking up a good specimen. Trilobites are no exception. While Silica, Ohio, is supposed to be the home of the finest fossil trilobites, there are in my collection equally fine specimens found miles from Silica. All are of the same type coated with chalcopyrite and in a wonderful state of preservation. One trilobite was picked out of the sand at Reno Beach (Lucas Co.), 17 miles east of Toledo. This specimen I believe to have been broken from an outcropping in the bottom of the lake (Erie) and sand blasted by the action of the lake. It was perfectly clean of matrix when found. Another specimen was found at Paulding (Paulding Co.), Ohio, about 70 miles S. W. of Toledo. The third wandering trilobite was picked up by my daughter, Carol, on a creek bed near Sandusky (Erie Co.), Ohio, some 40 miles east of Toledo. Also found here were quartz replacements of coral and many fossilized snails and brachiopods. The moral of this story is: trilobites, like gold, are where you find them. Note. Sorry, I have no fossils for sale or trade.

"Some weeks ago we made a trip to the quarry of the Sandusky Limestone Co., near Castalia (Erie Co.), Ohio. You will remember that nearly a year ago I reported the starting of this quarry. It is now about 30 feet deep. The limestone is very dark and has many spherical cherty deposits. Not a trace of any crystallization and certainly not worth the time of any collector to visit. Several other quarries in the district were visited with the same results."

A 2nd letter, from Mr. Gettings, dated Sept 20, reads:

"The quarry at Silica, Ohio. A bit of interest here. The original quarry was started years ago for a deposit of glass sand, hence the name. Later the sand became exhausted and the quarry abandoned. With the discovery of high quality limestone nearby the town again became active. Not only was the limestone suitable for road work but investigation showed that the stone just across the road was highly desirable for cement manufacture. At the present, quarries are operated by the France Stone Co. and the Medusa Cement Co. It is in the older part of the Medusa quarry that the trilobites are found."

OKLAHOMA — Native copper has been found near Perry, Noble Co., Okla.

OREGON—Erionite, a zeolite near stilbite in composition, and occurring in aggregates of very slender fibers, resembling woolly hairs, white in color, is found with milky opal in cavities in a rhyolite tuff at Durkee, Baker Co., Ore.

PENNSYLVANIA—Floyd R. Faux, 635—4th Ave., Bethlehem, Pa., donated some small but very lustrous golden yellow transparent xls of citrine quartz which occur in cavities of gray dolomite. Tiny rock xls, black platy hematite xls, black dots of pyrolusite on quartz and brown dots of goethite on rock xls are associates. The locality is near Bridgeport, Montgomery Co., Pa.

"The xls are found south of Bridgeport along the new turnpike shoulders. To reach the locality, go to top of hill (watch for limestone quarry on left), turn left on Crooked Lane to Charles Street to first viaduct on new turnpike. Fill for the turnpike here contains myriads of boulders (dolomite) filled with the quartz xls. The boulders come from a road cut nearby." —personal communication from Mr. Faux, dated July 3 1954.

RHODE ISLAND—Green xls of beryl, with quartz, have been found in Cumberland Hill Village, Providence Co., R. I.

SOUTH CAROLINA—Fine gem xls of aquamarine have been found in pegmatite in the area adjacent to Pelzer, in Greenville and Anderson Counties, S. C.

SOUTH DAKOTA—A very nice brown and white ribbon agate pebble was donated to R&M by Mrs. Edwin P. Olson, Box 425, Beresford, S. D. A ribbon agate is one having wide bands.

"This Badlands or ribbon agate I picked up this summer at Fairburn (Custer Co.), S. D."—note dated Aug. 25, 1954, from Mrs. Olson.

TENNESSEE—Nice xls of yellowish-brown titanite occur in the copper mines at Ducktown, Polk Co., Tenn.

TEXAS—"I am sending you a box of geodes. We collected them from the Wichita group of the Permian Red Beds of Clay County. They were scattered along the road ditch on a county road 6½ miles northwest of the small town of Joy, Clay Co., Texas. These geodes have some small pieces of native copper on the crystals and probably chalcocite also. Most of the geodes at this locality had a solid core of calcite—this had a faint fluorescence, not enough to bother bringing them in for.

"Copper does occur in the red beds in some of the Texas counties to the northwest of Clay County; most of the copper is a replacement of wood cells —not enough has been deposited to mine." —letter dated April 15, 1954, from Mrs. Ruby Renfro, 2901 Bomar Ave., Fort Worth 3, Texas.

The geodes contained the following minerals: aragonite, as whitish acicular xls in reddish-brown calcareous geodes; whitish slender xls of calcite in a brownish calcareous geode; and tiny copper-red globules of native copper on drusy grayish dolomite resting on a small section of a brownish calcareous geode.

Southwest Developers, Box 881, Abilene, Texas, recently sent us 2 celestite specimens which come from Blanket Creek, Blanket, Brown Co., Texas. One is part of a 3 inch geode whose interior is lined with pink grading to colorless celestite xls. The other is a loose one inch colorless celestite xl with a pinkish zone at its base.

UTAH—W. H. Anderson, Pleasant Grove, Utah, sent in a few months ago a number of pinkish rhyolites in which were small prismatic colorless glassy masses of bluish opalescent sanidine (feldspar).

"Found near Vernon (Tooele Co.), Utah, on Sabe Mt., which lies just east of Vernon,"—label with specimens.

VERMONT—Pale brassy arsenopyrite occurs in considerable amount at Braintree, Orange Co., Vt.

VIRGINIA—A new publication, "Virginia Minerals", made its appearance recently. The first issue, dated October 1954, Vol. 1, No. 1, consisted of 6 pages. It is issued by the Division of Geology, Box 1428, University Sta., Charlottesville, Va.

WASHINGTON—A letter dated Sept. 21, 1954, comes from Mrs. L. R. Haggard, Copper Mountain, B. C., Canada.

"Just noted in your Washington occurrence of minerals (July-Aug. 1954, p. 380) the statement about calcite veins at the celestite deposits at La Conner (on the southeast corner of Fidalgo Island in western Skagit Co. Wash.). What is more interesting to us is the occurrence of realgar and orpiment, some in nice crystal form and the celestite is nice botryoidal form—looks like frosted grapes."

WEST VIRGINIA—Fibrous gypsum up to 4 inches thick is found in Haynes Cave, Monroe Co., W. Va. (2 miles north of New Lebanon Church).

WISCONSIN—Some good masses of brownish limonite have been found north of Pepin, Pepin Co., Wisc., on Wisc. 35 (on flash flood creeks) by R. W. Nutting, Rt. 2, Box 17, Osseo, Minn.

WYOMING—Mrs. Pearl I. Johnson, Box 54, Jackson, Wyo., sent in recently a loose, light gray, one inch dahllite concretion. Its locality is near Cody, Park Co., Wyo. As this interesting specimen may be little known to our readers, the following information may be of some value, even though it appeared in print some few years ago.

"Some unusual concretions occur in abundance in the basal part of the Thermopolis formation (Upper Cretaceous), and are used as stratigraphic markers in the region near Cody, Wyoming. Some of the concretions are compound, i. e., composed of several interpenetrating spheres. Many, however, are approximately spherical in shape and average about 3 cm (about 1 inch) in size. They are phosphatic nodules and are unusual, first, in their spherulitic structure and second, in consisting essentially of dahllite which although probably a frequent constituent of phosphate nodules, generally does not predominate. The exterior has a peculiar texture, which usually shows a slight amount of weathering. The color of the weathered surface is light gray. Immediately within the weathered zone the material is brown, grading inwardly to light yellowish-gray. The center of the concretion is different in texture and composition; it is very dark in color. The dahllite effervesces in cold dilute acid. —"Spherulitic concretions of dahllite from Ishawooa, Wyoming," by Duncan McConnell, *American Mineralogist,* Oct. 1935, pp. 693-698 (Walter F. Hunt, Editor, University of Michigan, Ann Arbor, Mich.).

ALASKA—Frank H. Waskey of Dillingham, Alaska, but who is spending the present winter in Olney, Md., sent us a most interesting fossil specimen—black Sequoia leaf imprints on dark gray limestone.

"From Canyon of Moose Creek, tributary of Natanuska River, 10 miles north of Palmer, Alaska. Identification of fossil made by Dr. Ralph W. Chaney, University of California, Berkeley, Calif."—on label.

AUSTRALIA—A letter dated Oct. 4, 1954, comes from Kelvin Green, YMCA, Edward St., Brisbane, Queens, Australia. Part of it reads:

"Talking of black opals, there seems to be two classifications. One is black, no doubt about, with a wine coloured flash that changes to peacock-blue on moving the stone. The other classification includes with the true black all the deeper coloured opals, green, peacock-blue, etc. Reason for the darkness is not known.

"A light coloured opal hitting the market with a bang is from Andamuka in South Australia. A piece was recently presented to Queen Elizabeth, made into a jewel, and she expressed great pleasure over it. Alive with enough fire of the 'pastel' shades. Incredibly pretty. I have a 10 carat piece but it is not for sale. No sir! No grey cloudiness but a pale lilac fire where no other colours show. Price is $20 a carat metric. Comes in sizable lumps, flat, not nodular."

BELGIAN CONGO — Walter McNamara, 7 Harmony St., Danbury, Conn., sent us two nice specimens which he had collected at a harbonside quarry in Matadi, Belgian Congo. One was a snow-white cleavage of calcite, half of which was black-green due to inclusions of chlorite. The other was a deep black-green xline mass of chlorite.

CANADA — The following letter, dated, Sept. 25, 1954, comes from John W. Edwards, 305 Avenue Rd., Toronto 7, Ont., Canada.

"Some time back I sent you a specimen of an unusual magnetite with apatite. Seeing that you have not published anything about this unusual specimen, I am hurrying to send you something even more unusual; that is, specimens from another part of the same ore body. This time the specimen contains an unknown (and so unnamed) mineral which runs very high in columbium and zirconium, with fair values in uranium and even traces of lithium. This mineral is the pinkish orthoclase-looking portion of the specimen (there are also two very small white calcite xls which fl. red under the short wave U-V lamp).

"I will quote the latest report on this ore body (taken from the Northern Miner—a most reliable journal). Quote: 'The latest columbium discovery appears to be 3,600 feet in length and 1,000 feet in width, one diamond drill hole gives an average columbium value of $11.36 per ton; this new discovery should be added to the 50 million lbs. of columbium pentoxide at a price of $4.00 per pound,

mentioned previously. Then there are tremendous tonnages of the magnetite and apatite, grading $12.00 per ton. It is planned to construct a 2,000 ton-a-day mill to handle the open-cut operations on these metals.'—end of quote.

"I am informed by Mr. Fred Chubb (of the famous Chubb Crater) who is interested in this operation, that the country-rock or, if you will, the host-rock, is nephelite syenite; I have included one very small piece of this rock.

"The last specimen that I am sending is a new radio-active mineral called huttonite. As you will see it is a waxy looking chocolate colored mineral splashed on either an altered pyroxene or a greenish hornblende. This mineral was found in a road cut near Tory Hill (Ontario, Canada)—only a few pieces were found and I managed to get three of them (once again from Fred Chubb).

"I trust that you will find these specimens of interest. If anything else turns up from this most interesting deposit, I will try to get some material for you and send it along."

A 2nd letter, dated Sept. 26th, from Mr. Edwards reads as follows:

"Since writing to you yesterday, I came across the following report covering the ore specimens sent you.

"A laboratory scale test on samples of ore from Multi-Minerals Ltd., has resulted in completion of the first step in the production of a columbium concentrate, President John C. Rogers advises. The test was made by two U. S. A. research laboratories working on the project. Mr. Rogers reports that a concentrate containing 37.7% columbium pentoxide and 1.68% uranium oxide has been produced. Normal procedure, he states, is to produce a 9 to 10% concentrate, and then, by chemical treatment raise this to a 50% or better, end-product. The company has been advised that unlike other columbium discoveries on the continent, the columbium-mineral at Multi-Minerals is coarse grained and no serious problem is anticipated in making a commercial concentrate, or end-product. Work on the company's property at Nemegos, Ontario (Sudbury area) has put in sight in excess of 80,000,000 pounds of columbium pentoxide. Half of this is associated with magnetite/apatite ore bodies and the balance in a large zone of syenite (nephelite) surrounding the ore bodies. This does not include a new zone being drilled to the north. Another diamond drill has been authorized to speed work on the new North Zone which, Mr. Rogers states, appears to be approximately 3,600 feet in length and 1,000 feet wide. To date, 8 drill holes have been completed in this zone."—end of quote.

The ore specimen received consists of black massive magnetite with small amounts of greenish apatite and a new unnamed radio-active mineral which is pale pinkish and massive. The specimen comes from the Multi-Minerals property near Sudbury, Ontario, Canada.

GERMANY—Brown tetrahedron xls of boracite in massive gray anhydrite was a specimen received recently from Werner Lieber, Hubschstr. 24, Karlsruhe, US Zone, Germany. The locality is Hanigsen, Hannover, Germany.

SCOTLAND—Sandy Ramsay, 1015 Aikenhead Rd., Kings Park, Glasgow S4, Scotland, sends in some additional information about Elephant Rock which he mentioned in his report in the last issue of R&M, p. 473. In his letter, dated Sept. 2, 1954, he writes:

"Elephant Rock (near Montrose, Angus County, east coast of Scotland — on the North Sea) is so called locally, its actual name or rather the name of the point is St. Skaes, given in Heddle as an agate locality. Actually all this coast line from Montrose south to Ethie is agatiferous. Montrose, Ferryden, Scourdie Ness (the lighthouse), Usan, Elephant Rock, Boddin Point, Lunan Bay, right down to Ethie has produced in the past thousands of agates for the Birmingham jewelry trade, but now most agate is gotten from abroad. Actually the trade would take all the good agates it could get from Scotland as the words 'Scotch Pebble Jewelry' was a synonym for the best in agate jewelry in the trade and to the public, but there are no professional collectors of agate in Scotland now."

SOUTH AFRICA—A loose black xl of chromite from the serpentine of the Great Dike in Southern Rhodesia, South Africa, was received from John J. Lavranos, P. O. Box 10257, Johannesburg, South Africa.

SPAIN—Juan Montal, Plaza Sgdo, Corazon No. 1, Villafranca del Panades, Spain, has sent R&M a very fine, loose, lustrous pyritohedron xl of pyrite whose locality is Ambasaguas, Logrono Province, Spain.

SWEDEN — The Swedish collector, Gerhard Koppen, Skanegaten 3, Nybro, Sweden, has sent us an interesting specimen of xline lead-gray galena associated with white calcite which fl. red under the long wave light. The locality is the fluorite mine at Gladsax, 5 kms. west of Simrishamn, Skane Province, Sweden.

R&M Gives Much Pleasure and Information!

Editor R&M:

Not renew my subscription for R&M? Unthinkable. No other magazine, except Arizona Highways, gives us so much unadulterated pleasure and information.

Some of the ads bring us news of many of our friends, like Vance Tankersley of the newly opened Desert Rose; the club and society notes tell us what some of those known to us are doing and what they have found and where.

Mrs. David H. Keller
55 Broad St.
Stroudsburg, Pa.

Sept. 13, 1954

NOVICE COLUMN

In the Sept.-Oct. 1953 R & M, Gordon ViGario, 2231 Pine St., Bakerfield, Calif. suggested that a Novice Column be opened for rank beginners in mineral collecting. These amateurs, who do not know one mineral from another, may submit their names to the Novice Column.

It is our hope that collectors having duplicates may donate a few specimens to one or more novices who are expected to acknowledge receipt of specimens received and to reimburse each sender for postage paid on the packages. Please print or write plainly the names and localities of all specimens sent novices, and if 2 or more minerals appear on the same specimen, identify each. Remember the novices do not know one mineral from another, so please be as helpful as you can.

The following is the 7th list of novice collectors.

Willaim L. Whitehead, Box 25278
Los Angeles 25, California

Mrs. Barney Godshaw, 633-21st St.,
Santa Monica, California.

H. G. Garrison Jr., SK2, USN
U.S.S. Pollux AKS-4
c/o Fleet Post Office
San Francisco, California

Gordon M. Dickinson,
Box 54, Headquarters, Idaho, 11 yr. old

Wilbert Ohneck, Rt 1.
Huntertown, Indiana

J. F. Hart
Postville, Iowa

Marguerite Clasby, 525 Whitney Ave.
Louisville, Ky.

Philip Pizzolato, 2713 Dante St.,
New Orleans 18, La.

Philip Gehring, 9560 Abington Rd.
Detroit 27, Mich.

Carl R. Erickson, 6718-4 Ave. So.
Minneapolis 23, Minn.

Tony Swann, Crow Wing Co.
Crosslake, Minnesota

Glenn Howard Jr., 72 Page Road,
Valley Stream, New York

Henry Gottfried, 1409 Metropolitan Av.
Bronx 62, New York

Lillian Libby, 2044 Greenway Ave.,
Charlotte 4, N. Carolina

William Weaver, Box 399,
Holliday, Texas (11 yrs old).

Earl C. Peterson,
New Lisbon, Wisconsin.

A GEMMOLOGIST IN CEYLON

S. J. Squires, F. G. A. A.
61 Hawthorne Rd., Brisbane, Australia

This is how it all began.

A great many years ago, when I had reached the advanced age of six, I was shown a beautiful, coloured, banded agate marble, and lo! that instant a gem lover was born.

No, that is not quite right. The lover was born six years before, but the love, hitherto embryonic, quickened into life at the sight of that beautiful gem.

Gemstones are the flowers of the mineral kingdom, flowers that do not wither —everlasting flowers. Did I hear someone say that they had heard this before? Yes, you have, but why should I not repeat such a beautiful metaphor? Pliny, the Elder, so far as I can gather, was the author. Beethoven wrote the "Moonlight Sonata." You have heard that delightful composition over and over, and will again, without any apology. So why should I apologise?

From infancy to old age, there is nothing more stable and persistent than the love for gems. These exquisite baubles, symbols of love and power, since before the dawn of recorded history have never failed to excite the admiration, wonder and awe of man.

So, in the fullness of time, I became a trader in these beautiful natural objects, whose hidden beauty has been revealed to the full by the high degree of skill attained by present day lapidaries.

Love of gems begets a burning desire to see their native habitat, to meet the men that toil to unearth them, to learn of the conjunction of forces—chemical and physical—which brought them into being. This desire, whetted by acquaintance with Australian gem fields, knows no satisfaction. So the beckoning of Ceylon, one of the greatest natural gem producers of the world—the Mecca of all gemmologists—has prevailed.

So here I am on the high seas in the good ship "Strathnaver" with the kind wishes of many friends in all ports ringing in my ears, all agog with the pleasures of anticipation. I now look forword with mounting eagerness to my first experience of an eastern land. I will not burden you with stories of ship board life. During the past few years these have become commonplace.

Arriving at Colombo, (Capital and chief port of Ceylon, on the west coast) at 4 a.m. on September 1st 1953 what a medley of sound awakened me! Such a tooting of tug boat whistles, such a shouting of orders in a foreign tongue. It is indescribable. Conveyance is effected from the ship in mid-harbour to pier by ferry boat. After satisfying the Customs and arranging for transport of luggage by porter, one walks about 100 yards to one of the two large hotels in the city. I shall never forget that walk. The street beggars and sellers of various kinds of merchandise descended upon me in swarms, and the experiences related by many others, who have passed that way, have become reality.

As soon as one leaves his hotel to walk along the street, he is besieged, entreated, and urged to buy or give. Many cases of physical deformity shock the eye and soul. One must walk straight on towards one's destination, looking neither to right or left. To stop for a moment to look for a street number, is the signal for a succession of assaults of increasing momentum. Rickshaw men solicit ones patronage every few yards. I entered Colombo with the firm intention of never submitting to the degradation of soul which I felt would be mine if I were to allow a fellow human to drag me around like a beast of burden. Alas, for my good resolve. One night, strolling round the city I got lost, although not more than 300 yards from my hotel. A rickshaw man saw me, and knowing that I was lost came after me like a panther. Realising my predicament I thought it wise to engage him. On seating myself in the contraption, the poor little chap, weighing not more than seven stone, started to run.

"Stop running, and walk." I commanded.

After a few minutes to my great relief, the hotel came into sight, when I alighted and continued on foot.

I was told that a few weeks in the East would knock such feelings out of me. They wouldn't, they couldn't. I am pleased to be able to state, according to more than one informant, that no more rickshaw licenses are to be issued.

So the "unchanging East" *is* changing.

Another axiom enunciated by a famous Englishman "East is East and West is West and never the twain shall meet" I also dare challenge. I, the West, met the East on a bridge of gems, and what a substantial structure to meet on. The language of gems is International, Universal, and from such a common basis of understanding came other understandings. Yes, the East and West *can* meet if *we* care to make the effort.

Allow me to introduce to you Mr. F. L. D. Ekanayake, a Sinhalese gentleman, an F.G.A. of international reputation, an introduction to whom by Mr. Aub Rouse I gratefully acknowledge. This gentlemen's vibrant enthusiasm for the study of gems is a pleasure to behold. It was a rare delight to discuss, in his well-equipped laboratory, the subject so dear to our hearts—to, I trust, our mutual benefit. How fortunate the Ceylon government is in having a person of his calibre in the official position of gem and jewellery appraiser in the Customs Department, and what an uncanny sense he has, in separating the synthetic from the natural. It is astounding how "Careless" many Ceylon sellers of gems are, in failing to keep these categories separate. Just how zealously Mr. Ekanayake guards the gate, many a foreigner, including myself, can attest.

Then allow me to present Mr. Hans Van Starrex and his charming wife. I am not satisfied with that adjective, it is so much overdone; but I know not with what word to replace it. It is impossible to describe the feeling of confidence and goodwill that these people inspired.

Hans, as his name suggests, is of Dutch ancestry and possesses the typical sterling qualities of the best of his race. His speech is measured, dignified, and delivered in perfect English, with a Sinhalese intonation. His eye is straight, his knowledge of gems sound. What a pleasure it was to spend several days at his home, wallowing in the seeing and handling of many gems—commonplace and rare. Surely here was a man to be trusted.

And what shall I say of his wife? German born, her English speech with German accent, sounding delightfully musical, every word and action was implicit with the desire to make one comfortable—a perfect hostess and helpmate. What a privilege to know such people and to be allowed to call them by the name of friend.

Yes, I went to Ratnapura and descended one of the pits. How unlike Anakie diggings. I did not take measurements, but from memory should judge that the shafts are about 12 feet by 6 feet, half the section being deeper than the wash or "illam," as it is called. This acts as a reservoir to catch the water which is continually draining and which is brought to the surface by pumping. From this you will see that the pits are in very wet ground.

I descended a pit of about 30 feet depth, and traversed several drives. Shaft and drives drip mud and are of necessity very heavily timbered. The "illam"—gem bearing mud—is brought to the surface in baskets by windlass and deposited on a dump, from which it is taken in another type of basket and washed in pools—the natives standing in the water up to their waist. As each basket load is washed, its concentrates are examined for gems by the owner or lessee of the pits.

The difficulties of making a good trade connection in Ceylon are immense. Weeks could be wasted in such an endeavour.

In Ratnapura nearly everyone from laundry boy up is a gem merchant. How ludicrous the offerings of what they quaintly term "gems"! There is a whoop of delight when a foreigner visits the town—especially one that does not know

(Continued on page 622)

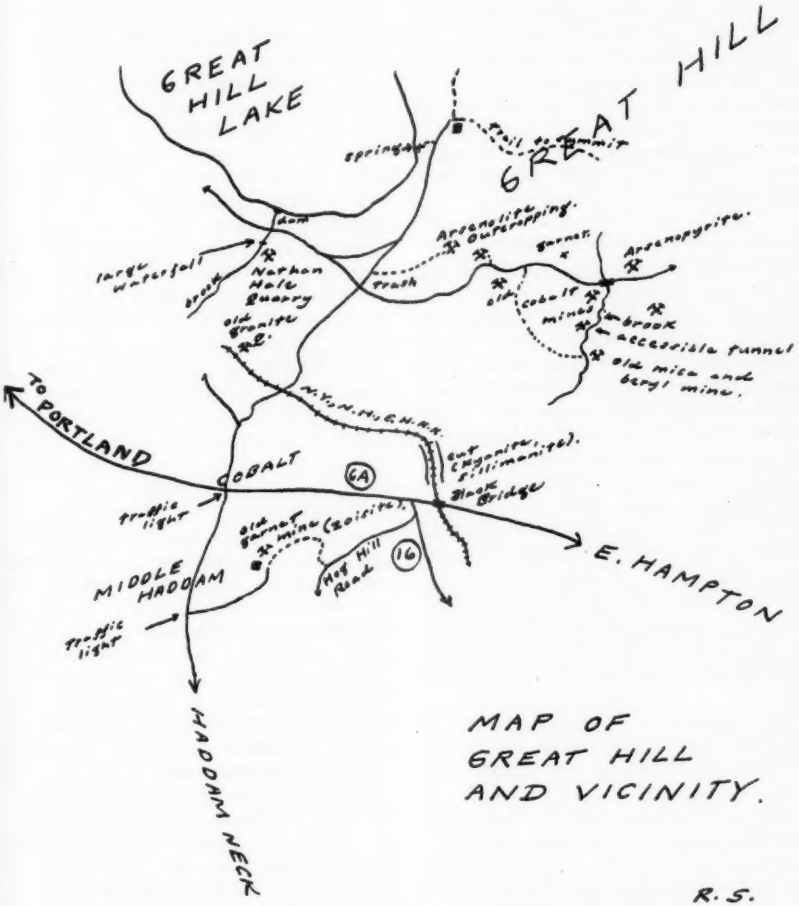
A New Locality For Arsenolite

By Richard Schooner
Box 215, East Hampton, Conn.

The cobalt mines, near the village which bears the name of the metal, are badly overgrown, at this time, but it appears that extensive operations were formerly carried on at the locality. Governor Winthrop became interested in the ores of Great Hill, around 1650, and several attempts at profitable mining were made between that period and the middle of the nineteenth century. Various accounts are considerably different in their estimations of the quantities of cobalt and nickel which were found, but it is likely that some rich veins were encountered. However, they must have been too discontinuous for successful exploitation. The shafts are now filled with debris, and the tunnels, with a single exception, are inaccessible. That one is situated in the deep glen through which Mine Brook flows, in what is supposed to be a picnic area. In fact, most of the old mines are state property, being a part of Meshomasic Forest. The dumps are composed of a barren mica schist, probably indicating that the veins were completely worked out, with futile efforts to find additional amounts of the valuable ores. Arsenopyrite can be seen in several exposed veins, and such minerals as smaltite and niccolite, together with sphalerite and galena, can be collected, in very lean specimens, if one is prepared to break up the few remaining ore blocks at one site on the base of Great Hill. A small pegmatite working, where both mica and beryl were obtained during the Second World War, is located at the lower end of the previously mentioned glen. Small quantities of the cobalt and nickel minerals, as well as siderite and manganapatite, and even a few cordierite crystals, have been noted there. Capillary crystals of bright green annabergite were found in the pegmatite, nearly a decade ago. The minerals which have been reported from the Great Hill area, though few of them can be collected at this late date, are these: gold, galena, sphalerite, niccolite, breithauptite, pyrrhotite, chalcopyrite, pyrite, cobaltite, smaltite, chloanthite, arsenopyrite, quartz, hyalite opal, arsenolite, spinel or gahnite, pyrolusite, goethite, limonite, siderite, orthoclase, microcline, albite, diopside, actinolite, hornblende, beryl, cordierite, grossularite, almandite, sillimanite, tourmaline, staurolite, muscovite, biotite, chlorite, kaolin, apatite, erythrite, annabergite, scorodite, melanterite, and pickeringite.

The subject of this article is arsenolite, a rare mineral which evidently escaped the attention of many people during the three centuries of the area's modern history. This is rather surprising, because the arsenolite is abundant in a comparatively large quartz vein. The vein traverses an outcropping of the quartzite which is the predominant formation of Great Hill's southern end. A small dump is situated below the open vein, so some mining must have been done there. The author first became acquainted with the locality some seven or eight years ago, and, even on the first visit, he was puzzled about the microcrystallized crusts which could be observed on many examples of altered arsenopyrite and what was obviously scorodite. He ultimately deduced that they must represent an occurrence of arsenolite, which is by no means common in the eastern part of the country, and this identification was confirmed by microscopic study of the crystals. Even the largest of them are too small to be accurately examined without a powerful source of magnification, but they completely cover some rock surfaces. A cryptocrystalline variety makes outstanding specimens, particularly on a background of white quartz.

There are evidences of minor faulting, just a few feet away, and it is presumed that the ore veins were thoroughly cracked in the process, with arsenolite having been formed, through the oxidation of arsenopyrite, in the resultant openings. Scorodite is intimately associated, and some specimens of that mineral are botryoidal and almost sub-translucent. Odd examples have been collected, and it is possible that other species, such as pharmaco-



Map of Great Hill and vicinity near Cobalt, Middlesex County, Conn.

siderite and pitticite, and more probably claudetite, may be present, but, if so, they have not yet been identified.

The accompanying sketch ought to guide any prospective collectors to the rather obscure locality. A sledge hammer is indispensable, if more than chips are to be secured. Then, too, arsenolite is a very soft material, and there is a danger of scratching or bruising the pieces which are extracted from the vein.

The author wishes to express his gratitude to Mr. Gunnar Bjareby, of Boston, for confirming an identification which, though it proved to be correct, was hardly more than intuitive.

COLUMBITE IN NIGERIA

By AUBREY E. HORN
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As the mineral columbite is now a highly important strategic mineral, and Nigeria produces 95% of the world's output, the writer thought that it may be of some interest to give a brief and general outline of its occurrence in that country. It occurs in the placer deposits of cassiterite, which have been worked since about 1909.

Outline of the Geology

The main placers containing both cassiterite and columbite, the latter as an accessory and in much smaller quantity, occur on the high Plateau. This has an average elevation of about 4000', with granite hills up to about 5000'. The area is about 2000 square miles, but if the whole of the tin deposits are taken into consideration, there is a margin below the Plateau, extending to the north, south and west, in which there are workable placers, making the whole of the field extend over an area of about 8000 sq. miles. The richest deposits, however are on the Plateau. Jos is the main town and business center, and is also practically the central point of the area. It is situated approximately at Long. 8° 50' E., and 9°55' N.

The basement complex is composed of ancient schists and gneisses, which are believed to be Pre-Cambrian. Injected into these were gneissose granites which are known as the Older granites. Following these injections at a later date, the basement was again invaded with granite, and it was due to this granite, known as the Younger granite, that the cassiterite was deposited as a result of escaping vapours and solutions. A period of erosion now set in over a long period in which the granite bathyliths were exposed, and they themselves deeply eroded, freeing the contents of the mineralised zones, and depositing them in the channels. These latter were gradually infilled with the products of denudation due to perhaps crustal movement. The gradual elevation of the Plateaus caused alteration of drainage channels, redistribution of the old deposits along new channels, and also the removal of much of the first products of erosion known as the Fluvio-volcanic series. The next phase of activity was the outflow of basalt, which covered many of the tin bearing streams and flooded large areas of the country. Under this basalt some of the channels contain rich deposits of tin. In some cases the basalt is almost 200' thick. The tin is recovered from old channels which have been covered by the Fluvio-volcanic Series, from more recent concentrations derived from rearrangement of the sands and gravels of the old rivers, and to a smaller extent from beneath the basalt. That then is a broad outline of the main features of the geology. In detail it is much more involved over certain local areas.

Ore Dressing

Occurring with the cassiterite are many other minerals occurring as accessories, and in the form of sands, among which are ilemenite, magnetite, monazite, zircon etc., but now the most important, columbite as well. This latter mineral formerly regarded as valueless, was an exceedingly annoying one to separate from the tin on account of its relativly high specific gravity, tin was the economic mineral, columbite the waste. The difficulty of separation arose because the methods used for grading up the cassiterite for shipment were entirely hydraulic. It must be emphasized however, that these methods were entirely satisfactory, for practically all the mines had very little columbite. It was those deposits in which an unusually large amount of this mineral occurred that yielded a concentrate more diffiuclt to deal with. The hydraulic methods of treating the concentrates comprised Wilfley type shaking tables and more commonly an apparatus known as a Willoughby. This latter is a form of "slow motion" jig, in which a fixed box with a perforated metal screen, is filled with the crude concentrate. A tank of water about 15" dia and 5' high is connected to a compartment below the

screen with a large pipe. Opening a valve allows the water to enter the box through the screen, which at first violently agitates the concentrate, but as the water falls the turbulence subsides and the heavier tin finds its way to the bottom, the lighter minerals such as sand, ilmenite etc. lie on top and are scraped off. This is repeated until the tin is concentrated to 72% metallic tin and over. It is then dried, bagged and shipped. On some mines the columbite occurred in sufficient quantity to give a rather lower percentage, with consequent penalisation by the smelters for ore under grade. The use of electro-magnetic separators however, overcame this difficulty.

When the market for columbite opened up, the tailings dumps were a big source of revenue for those mines which had enough columbite in the dumps for recovery. They were then re-treated by passing over the separators, and the columbite recovered by using fields of suitable magnetic intensity. A low field would remove magnetite and ilmenite, this was dumped and the remainder retreated using a higher intensity, which would remove columbite and perhaps other minerals with about the same permeability. Careful sizing is important at this stage, and for the next stage is essential, and be closely carried out. To clean the columbite from the magnetic separators and eliminate any waste the concentrates are put over a Kipp-Kelly Air Float separator as mentioned above, sizing is the essential condition for a clean concentrate. The material is screened through 20, 30, 40, 50, 60, 80 and 100 mesh screens. The heads from this machine are now up to grade and bagged. The concentrate will contain from 66 to 70% mixed oxides of tantalum and niobium. The average Nigerian ore will contain 64% approximately of Nb_2O_5.

At this point it may be pertinent to briefly outline how one knows when the ore is up to shipping grade. This is gauged by specific gravity. If the ore runs between 5.4 to 5.5 it is safe to ship. If the concentrate is below this figure it will be contaminated with ilmenite, if above it may have some paramagnetic cassiterite, or it may contain a higher percentage of Ta_2O_5, but the latter alternative is of rare occurrence. The cassiterite can easily be detected by taking a small amount, adding zinc powder, then dilute HCl. If "tin" is present it shows up at once as whitish grains, due to a coating of metallic tin. The Sp. Gr determination is simple and rapid. A burette is partly filled with water and a reading taken, then exactly 100 grammes is taken and poured into the burette and another reading taken. The difference between the two gives the displacement and this figure divided into 100, the weight of the sample, gives the Sp. Gr. It is obvious that any weight may be taken, but 100 grammes is convenient. Exactly the same method has been used for checking the shipping grade of cassiterite ever since the fields were open. It is remarkable how close to the smelter's assay this simple method agrees.

As a field test, or in the laboratory, the most reliable for detection of niobium is a method worked out by Schoeller and which he called "Tartaric hydrolysis" test for columbic-tantalic mixed oxides. A small amount of the mineral about say 0.1 gramme is mixed in a small pyrex tube and fused to a clear melt with $KHSO_4$. After cooling it is heated with a strong solution of tartaric acid. It is then filtered and to the filtrate about one fifth of its volume of strong HCl added. On boiling a white ppt of the mixed pentoxides is thrown down. This is a specific test. If the solution of the melt is not cloudy one can proceed directly to the addition of the acid, and the writer has found this satisfactory. The micro-chemical glass ware is very convenient and does not take up a lot of space.

A rough idea of the proportions of the pentoxides can be obtained, by the use of tannin, another development by Schoeller. Titanium must not be present to a marked extent, neither must zirconium, and the usual methods for eliminating these must be carried out. It is found that Ta_2O_5 if dissolved in a solution of ammonium oxalate to which a little ammonium chloride is added, the further

addition of tannin powder will on boiling give a flocculent yellow ppt of a tannic acid complex. Nb_2O_5 will under the same conditions give a dark red complex. A mixture of the two will, starting from a low niobium content, give deepening shades of orange as the Nb content progressively increases and Ta decreases.

The Source of the Columbite

Columbite is widely distributed on the tin field, but by no means are all the occurrences of economic value. It is found in traces in most parts, but so far appears to be localised when in payable quantity. It appears when viewed under the microscope, using say 30X magnification, to be in the typical elongated prisms and flat tabular forms. These are mostly terminated by combinations of the domes and various pyramids. In many cases the crystals are fragmentary, but even then, what remain of the forms are sharp. In some cases waterworn grains are seen. The crystals and their fragments are quite bright and interfacial angles sharp. This brightness of the individual crystals, gives a characteristic lustre to the bulked concentrate.

The origin of the columbite was at first obscure and indeed owing to there being no market for it no great attention was paid to its genesis and its source. It was just regarded as a nuisance where it occurred in greater quantity than usual. So important has it now become as a strategic mineral, that a great deal of attention has been focussed on the question "Where has it come from?". A very great deal of intensive research has been carried out by the Geological Survey to find the source, and a large area in the vicinity of Jos has been examined in detail. They have split up the Younger Granites — formerly grouped as one entity — into a series of divisions based on crystalline texture and successive intrusions. Mechanical analysis of these facies, where exposed as soft decomposed bedrock in old and present workings, and where streams have exposed them, have been carried out in a very large way. Weighed samples of different types, have been taken from a great number of exposures, crumbled under water, and very carefully panned. The columbite is separated and weighted in milligrams. These figures gave the value of the columbite in pounds per cubic yard. These values varied from traces to an exceptional value of 7 lb. per C. Yd. The more common value was something like 0.25 to 0.5 for anything that may be of payable value. This investigation pinned a fairly constant value to each of the different divisions, so that when they were recognized a good idea of the chances of finding payable columbite in the bedrock was established, and thus narrowed down the areas worth examining. So great is the attention now being paid to the possibility of working these primary deposits that one big group has already started a pilot plant to evolve a method of working, and to see if it can be worked economically. The problem confronting an operator is how to save the columbite. This problem is posed because a very large percentage of the mineral is from—100 to—200 mesh, Such fine grade is not easy to save in a sluice box, and if lost of course reduces the origial estimated value of the deposit.

The material shipped however up till the present is not so fine, indeed it is relatively coarse up to -10+20 mesh down to +80, the bulk of i beting between -20 +60. In some cases "nuggets" of 1" and over have been found. It must be remembered that these coarser grades have been recovered from placers, and it is likely that the very fine grades have been carried away during the concentration of the heavy minerals in the streams to a very large extent, and are now thinly disseminated as traces in enormous volumes of sand and gravel. The problem of the origin of the Plateau columbite has been solved, and that is, that it is a primary constituent of certain facies of the Younger Granite. The work done by the Geological Survey is of great value in narrowing down the areas where columbite may be expected to occur in payable quantity. This work is still continuing. The remaining problem is how to have the fines, and it is to this problem that much thought is being given, and much experimentation being carried out.

Some of the Uses of Columbite

The initial demand for columbite was the outcome of the discovery that niobium alloyed with steel used as stainless steel prevented intergranular corrosion, by neutralising the action of the uncombined carbon. The present great demand for this mineral was the development of the jet engine. It was found that by alloying niobium with the steels used, a steel was produced that withstood the very high temperatures involved, thus overcoming corrosion and burning out. Up to the present niobium is found to be the only known element capable of producing such steel. So great is the demand for columbite, that the USA are paying £2000 including the 100% bonus for the high grade material, such as comes from Nigieria.

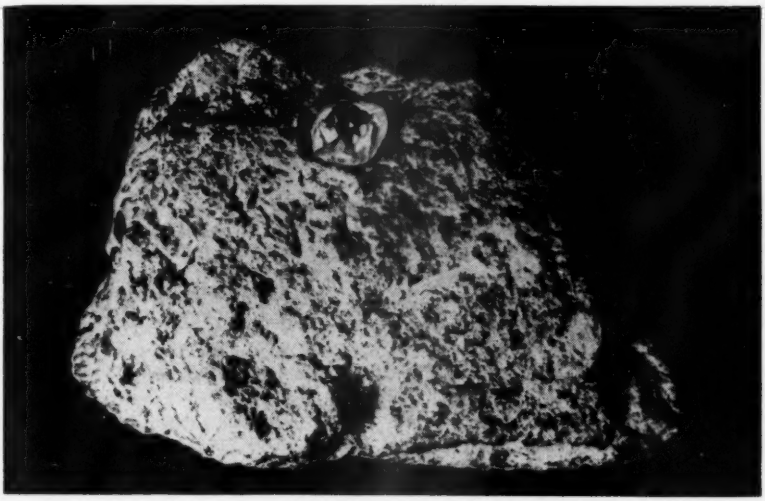
REFERENCE

A brief description of the tin fields of Northern Nigeria, West Africa, by Aubrey E. Horn, ROCKS AND MINERALS, March 1929, pp. 1 - 7.

ATOMIC INSTRUMENTS NOW USED FOR DIAMOND PROSPECTING

Atomic instruments are now pointing the way to a new and exciting era of geologic exploration. Diamond prospecting is the most recent field to which the use of atomic instruments has been applied.

The Radiac Company, Inc., 489 Fifth Avenue, New York City, leading supplier of atomic and geophysical prospecting instruments, has been supplying gem explorers in South Africa with airborn Geiger and Scintillation Counters. South Africa, as one of the leading diamond-producing areas in the world, has contributed much to the advancement of new



A diamond in its kimberlite matrix
Courtesy of Industrial Diamond Assn. of America, Inc.

techniques for diamond exploration, aerial radioactivity surveys being the latest development.

It is known that diamonds originate in "kimberlite pipes," vertical, funnel-shaped bodies of rock that once were deep within the earth's crust. Kimberlite is bluish in color and the diamonds are found as crystals scattered throughout the blue rock. The world-famous Cullinan Diamond, weighing 3,106 carats, was found in a kimberlite pipe of the Premier Mine, South Africa. From the total South African production of over one million carats a year, 85 percent come from kimberlite pipes. These pipes are known to exist in the United States, where diamonds have already been found. The diameter of the pipes can be as wide as 2300 feet. Geologists believe these pipes were formed when a gaseous explosion inside the earth produced a funnel-shaped crater which was later filled by the molten kimberlite oozing up from the depths of the earth.

It is now possible to locate these pipes by making Scintillometer aerial surveys. The Scintillometer is one hundred times more efficient than standard Geiger Counters. It is an extremely sensitive gamma ray detector, gamma rays being the most penetrating of the radioactive rays.

In the past, Geiger and Scintillation Counters were found to give poor response in certain areas, leading prospectors to believe that their instruments were defective. Knowing that there is a normal radioactivity background all over the face of the earth caused by cosmic rays and the radiation coming from the ground, the very significant drop in the radioactivity background in certain areas presented a peculiar phenomenon. The most plausible theory pointed to the elusive diamond pipes, and this radioactivity blackout now serves to guide geologists to the areas where diamonds may be found.

Geophysicists have discovered that different types of rocks show different degrees of radioactivity. Granite, which contains quartz, has a high degree of radioactivity while basalt, which is free of quartz, has very little natural radioactivity.

Kimberlite belongs to the basalt family and exhibits very little radioactivity. Kimberlite pipes are usually surrounded by rock of granitic origin. An airborne Scintillometer survey would show by the rise and fall of radioactivity where these kimberlite pipes exist.

A plane equipped with an airborne Scintillometer would fly a grid pattern fifty to two hundred feet above the ground. The gamma radiation picked up by the Scintillometer would be continuously recorded on a chart. If the chart shows a sudden drop in the radioactive level and then returns to normal, further investigation of the area should definitely be made with a Geiger or Scintillation Counter on foot. This would pinpoint the area of low radioactivity. By taking readings at fifty foot intervals, the outline of the kimberlite pipe could be mapped out.

Airborne Geiger Counter and Scintillometer surveys only indicate the possibility of the pipe's existence. The evidence gained from such a survey is correlated with the results of a magnetometer survey. If the evidence or both surveys are corroborative, the chances are that a kimberlite pipe will be found in that area.

U. S. Antarctic Expedition to Hunt Uranium and Oil

According to press reports (ours was taken from the New York Herald Tribune, Sun., Oct. 3, 1954), an expedition, ordered by President Eisenhower, will leave Boston, Mass., Dec. 1, 1954, aboard the icebreaker Atka, to hunt uranium, oil and coal and make other scientific studies in the Antarctic. Adm. Richard E. Byrd, of Antarctic fame, will be technical adviser and Comdr. Glen Jacobsen will be the actual commander of the expedition.

THE AMATEUR LAPIDARY

Conducted by COMMANDER JOHN SINKANKAS
Certified Gemologist, American Gem Society.
1107 S. Oakcrest Road, Arlington, Va.
Amateur and professional lapidaries are cordially invited to submit contributions and so make this department of interest to all

THE TREATMENT OF MALACHITE

MALACHITE AS A GEMSTONE: The bright green carbonate of copper, malachite, has been used for hundreds of years for gems, carvings, ornamental objects and even for furniture when sawed thin and inlaid or applied as a veneer. It is perhaps most useful for pendants, earrings, and bracelets or necklaces—almost any kind of personal adornment which is not subject to heavy wear. Being quite soft, H 3.5-4, and furthermore, subject to attack by acids, it is not capable of withstanding much abuse.

Perhaps the most lavish use of malchite as an ornamental material arose through the discovery of the famous Nizhne-Tagilsk deposit in the Ural Mountains of Russia during the Czarist regime. Many tons of top-grade material were mined with one stupendous mass being extracted of 9 by 18 feet! This malachite was used for table-tops, cigar and jewel boxes, for carvings, and even for the decoration of columns, pedestals, etc. For the latter, selected pieces were sawed thin, flattened on one side, and then cemented to the object. The exterior surface was then lapped flat and polished. So cleverly were the joints prepared that seams were detected only by close examination and then mostly by the change in pattern. Whenever this veneer was applied to wood however, the relative instability of the latter soon caused cracking and spalling of the malachite veneer. As a consequence, such pieces are not commonly seen anymore.

Among the Chinese, malachite was held in high esteem and pieces carved therefrom commanded prices comparable to the better qualities of jade. Much of this material has now disappeared and is seen only rarely. Much of it is characterized by a blackish deposit in crevices and other places in the carving which are not touched by handling, giving, in all, a rather gloomy aspect to what is normally a fairly vivid material.

In the United States, perhaps the best malachite of all was found in the upper sections of the porphyry copper deposits of Arizona where it occurred in sufficient thickness to admit of carving and gemstone making. Quite unique were the admixtures of malachite and azurite which were found from time to time in these mines, the contrast between vivid blue and green was most pleasing. In some cases, stalactitic growths of malachite with azurite were found which could be sectioned and then provided beautiful concentric bandings of contrasting hue. Unless more mines are opened up in southern Arizona however, the chances of getting any of this material are very remote unless an old collection is being sold. Malachite of any consequence, is always found near the surface of copper deposits and only a short career is needed to exhaust the available supplies in any given mine.

Our most recent deposit of actively-producing interest as far as malachite is concerned, is the copper region of Africa in the vicinity of Tsumeb and Otavi in South West Africa. Large quantities issue each year from this place and constitutes the present stock in trade of all who deal in this mineral. African malachite is of excellent grade and occurs in very large size, although not on the magnificent scale of the former Siberian mines. Nevertheless, the author has seen in the showrooms of Parser's in New York City, a mass of malachite which appeared to be roughly spherical and almost 18 inches in diameter. With a specimen of this size, some worthy object of art could be easily carved.

QUALITY IN MALACHITE: A little lapidary experience with malachite soon teaches one the basic facts about a material which is not easy to prepare well. For one thing, the most compact forms are very dark, so dark, that the color is not particularly agreeable and certainly not bright. Bandings are inclined to be subdued and the overall effect is solid green of a dark shade, yet this is exactly the kind of material which polishes most easily, the very compactness of fiber assuring less undercutting and a swifter and better polish. On the other hand, the light-colored material, often interspersed with lovely swirlings of somewhat darker tone, is easy on the eye but the very devil to polish. The lightness stems from the wider separation of the fibers and more of them, but, as may be expected, the material is somewhat "earthy" and undercuts badly, especially between bands. The light-colored material is also considerably weaker and its use is therefore not recommended for jewelry unless thick stones with stout edges are contemplated.

The current price for malachite runs from $6.00 to $7.50 per pound, less excise tax, with prices running somewhat higher for especially good-sized pieces of compact quality. Much of the African material of light color is often permeated with small cavities where adjacent botryoidal growths have overlapped but have not done so completely. The dark material is more apt to be quite solid. In both kinds, a very fine swirly pattern is often indicative of cavities, while the broad banded kind, with shallow curvature to the bands, is almost certain to be flawless in large sizes.

SAWING MALACHITE: Nasty — that's the word for sawing malachite; a blackish mud results which is highly staining and, the saw blade, in spite of the softness, of the stone has a hard time of it. A peculiar glazing takes place on the sawn surface which seems to clog the blade and slows down cutting action. It is the author's opinion that this is due to the absorptive action of malachite which soaks up oil readily and therefore causes excessive lubrication. It has been found better for example, to saw malachite with plain water. A slow rate of feed and a copious supply of coolant, promote better sawing whatever method is used.

GRINDING: No particular precautions are needed except to remember that the extreme softness can easily result in mishapen cabochons due to over-grinding. Malachite again tends to glaze and blacken if grinding is not done with lots of water.

SANDING: In spite of the softness, two grades of cloth should be used for sanding. Wet sanding is by far preferred to dry. Finish sanding is best on 400 or 600 cloth with considerable water supplied to make the last cut as gentle as possible. This extra attention will save much time in polishing, more so than is true of other minerals. Rubber-bonded abrasive wheels, such as Cratex and Bright-Boy, are peculiarly successful in placing a fine sanded finish on malachite, however, they suffer from the fact that the stiffer surface makes smooth fairings of curves somewhat more difficult than is the case in conventional sanding. The extra-fine wheels place a fine gloss on malachite; these wheels are used wet.

POLISHING: As in so many other "difficult" materials, the principal secret of polishing success lies in thorough preparation beforehand, specifically in fine-sanding. Although malachite is soft it does not mean that polishing is easy, in fact, most experienced lapidaries have found the reverse true with harder stones being generally easier to polish. Malachite is the same way. Attempting to polish with cloth surfaces such as cloth buffs or felt buffs, usually results in a fairly high gloss but also "lemon peel", the severity of the latter in accordance with the softness of the individual layers. Sometimes very high speeds will do the trick but unless much care is used, excessive heat may be developed and the stone cracked.

The author's preferred technique for the polishing of malachite is to pre-polish with leather followed by hand-buffing with a fragment of soft leather, in both cases the leather is used wet. A certain amount of fine scratching may be noted

in using a power-driven leather buff and it is the purpose of hand buffing to remove these defects. Linde A is extremely useful for polishing malachite but chrome oxide will do as well. Chrome is inclined to be "gritty", possibly because of the lack of attention to purity in the manufacturing, and for this reason it is wisest to use only a bit in the bottom of the powder pot covered with much water. The powder is picked up by stirring the water on top, thus permitting the heavier and coarser particles to remain on the bottom where they will do no harm.

Hand polishing employs a scrap of soft leather about 2 inches square, and only the green-colored water on top of the powder pot. A drop or two of acid added to the polishing mixture, ordinary vinegar will do, helps to bring up the gloss because of the reaction of the acid with the malachite. Naturally, all of the surface must be kept wet at all times, since any of this acidulous water allowed to remain and dry will etch away the polish. The softest malachite will polish with this technique; it is tedious but worth it from the standpoint of results.

CABOCHON PROPORTIONS: It is worthwhile noting that the weak nature of malachite requires the avoidance of sharp bezel edges on cabochons. These are very apt to chip in setting of stones in jewelry. It is a good idea to give the sharp edge a quick swipe on the fine sander to remove any knife-edge left.

Epidote, Garnet, etc., in the Kernville Area, California

G. VIGARIO
2231 Pine Street, Bakersfield, Calif.

The town of new Kernville, Calif., is located some 50 miles northeast of Bakersfield in the Greenhorn Mountain Range. Due to the construction of a large dam across the Kern River, the old town of Kernville was condemned and moved to its new location, some 6 miles upriver. Old Kernville, now merely streets and foundation, will soon be covered by the backed up waters of Isabella Reservoir.

It was to this area that I headed to do some last minute collecting before returning to college. I had originally planned to look over a dump at a small mine near the summit of the Greenhorn Mountains, 14 miles or so away. But nothing of great interest could be found there, so rather than give up entirely, I decided to try my luck at the mill yard of the Big Blue Mines, just a short distance from town. (Permission, of course, must be obtained)

At the far end of the yard there was a small pile of Stibnite that had not yet been milled. I found several high grade ore pieces, but unfortunately no crystals were to be had. The Stibnite came in metallic gray, semi-xline masses that were quite pure. This one had evidently come from the center of the vein. Intermixed with the richer ore were some pieces of material that most probably came from the outer oxidized portion of the vein because it contained Stibnite as well as other Antimony minerals. Cervantite, an alteration product of Stibnite, occurred as a granular yellow powder intermixed in what appears to be a quartz-pearlite. On certain other pieces I noticed a white amorphous material that could be Stibiconite or Valentinite.

In the center of the mill yard were two piles of "gold" ore. Although I looked very closely, I could find not the slightest trace of free gold, but more than likely it was of very low gold content. Perhaps the gold was in the form of a Telluride or a Selenide. On these piles there were some very interesting Garnet/Epidote specimens. Though my collecting is centered about the non-silicate minerals, I do like to study the Garnet group. The Garnets at this locality, as well as at others in this area, are evidently a semi-oxidized (or weathered) Almandite, with the darker ones grading off to an Andradite. My interest in these specimens was not so much crystal perfection and other desired features, but the replacements, weathering results, and casts. On one specimen I observed that the crystals, trapezohedral-dodecahe-

dral, had been partially replaced with Epidote so as to form a periform crystal—the nucleus being Epidote and the outer shell Garnet. Certain other crystals had disentegrated to such an extent that only the outer shell was left—the inner portion was just a hole. There were several specimens of Garnet crystal casts found, also. The casts were left in Epidote that had, no doubt, originally been the material in which the crystals had formed. It is my belief that the Garnet crystals had weathered out (or oxidized) thus leaving the casts. I do not believe that the crystals were mechanically removed, i. e. miner's pick, or earthquake, because portions of crystal faces and crystal material are left in contact with the casts. The Epidote cast material is resting on a layer of Garnet/Epidote Schist.

I found a 1.5" Garnet crystal section that strikes me as being rather odd. It is a dark brown specimen that is possibly between Almandite and Andradite, and is quite well formed and solid. This particular crystal is in the form of a *dodecahedron,* instead of the usual trapezohedral modification of the 12-ron. Of course this specimen could have come from an entirely different zone or even a different mine. But, physically it bears a great resemblance to the other regular crystals; excepting crystal form therefore, this would lead me to believe that it is some type of odd occurrence.

There are of course other Garnets, of the 12/24-ron type that are quite solid both internally as well as externally. Some even show a slight transparency — a very slight transparency, though.

I might add that on the short dirt road into the mill yard there is a very small pile of white material that looks like Wollastonite crystals in xline Tremolite. I have been told that in or near the Greenhorn area there can be found a pseudomorph of Wollastonite after some related silicate; however, I have seen none of this material.

The town of Havilah is situated some 20 miles south of Kernville. Havilah was originally the county seat of Kern County, but Bakersfield took over that title many years ago. In the 1880's gold was discovered and a minor rush was on. The first bank there consisted of a plank resting on two whiskey barrels. Some trusted person sat "shotgun" over the strongbox. A few miles south of the town there is a semi-abandoned Tungsten mine. From the small dump one can obtain a few items of interest. Scheelite occurs there intermixed in a light Garnet-Epidote-Quartz matrix. However, the only way to see the Scheelite is to employ a Mineralight. The substance fluoresces a blue-white, to white, to yellow depending on the purity. The usual run of Garnet and Epidote can be found here. I spent some time covering the dump, but no complete, loose crystals were available. However, average xls embedded in a matrix were easy to find. These Garnets tended to be a little more red than the ones found at the mill yard.

Epidote crystals can be found here, but they are well formed only in the micro crystals. If the crystals are in Calcite, they can be removed by dissolving the Calcite with acid. The crystals, mostly in clusters, will make nice micromounts.

The Kern River, which parallels the road up from Bakersfield, can be panned for gold if one has determination and a strong back. I understand that a collector can obtain a few colors by patiently washing the black sands of the beaches of the river; however, the yield is very low.

I would like to say in closing that I have spent many pleasurable hours hunting for Epidote, Garnets, Scheelite, and what not in the Kernville Area.

An Avid Reader Of R&M!

Editor R&M:

I am an avid reader of your magazine. When an issue arrives in the mail, I spend the rest of the day reading it. You have a wonderful magazine and each issue gets better as it goes on.

Steve Norton,
155 Winter St.,
Westwood, Mass.

Sept. 6, 1954

MINERAL SHOPPER'S GUIDE

Conducted by CHARLES A. THOMAS
706 Church Street, Royersford, Pa.

Advertisers are invited to send notes or samples of their products. This service is free.

As the Pennsylvania Dutch would say it, "1954 iss abot all". Merry Christmas to all and a Happy New Year. Wish we could see the Holiday gifts, especially the mineralogical ones, that are shuttling back and forth across the nation via P. Post and down the chimney.

Speaking of chimnies, how can the old guy with the red pants and white whiskers manage these modern ones? And did you know that the old style coal-burning chimnies sometimes smeared those red pants with soot containing Germanium? This proves something or other, mainly that even Santa Claus cannot get away from minerals, one way or another. We sincerely hope that Christmas will bring you something mineralogical.

Last year we helped Santa Claus a little by suggesting such things as Mineralights Gieger Counters, Books, crystal and gem sets and many other items. Several collectors, in our own area, received Mineralights in various types and sets of fluorescent minerals for the long or short wave lamps. A thrilling gift idea if there ever was one. Ultra Violet Products Inc., the manufacturer of Mineralights, sent us six superb cabinet size specimens of Amber in Lignite, Glassy Opal, and Apatite, all of which are beautiful under the EH4 lamps and other long wave lamps. We urge beginners to get hep to fluorescence and to the top-flight equipment manufactured by Ultra Violet Products, Inc.

Trumbull, Connecticut Scheelite, which Ronald Januzzi helped us collect one steaming hot day in August, has been compared, side by side, with all of our other Scheelite specimens from various localities. Only one fine specimen from near Cima, California, is brighter in fluorescence. Small pieces of Korean Scheelite are whiter but not more intense in reaction. Incidentally, massive topaz, margarodite, zoisite, fluorite and calcite are found in plenty at this interesting locality.

Branford, Connecticut is one of the nicest towns we have seen anywhere. This is the home of what promises to be the largest and most complete all-fluorescence establishment in the east, if not in the whole country. Howard Pate's Fluorescent House, mentioned in the July-August issue of Rocks and Minerals Magazine, will soon be ready to supply the very best in fluorescent minerals, lamps and other items of interest to luminescence addicts.

There are some few marvelous collections to be seen in which there is not one specifically fluorescent mineral. However, it seems to us that where there are fluorescent minerals to be seen, the reaction under various types of lamps, steals the whole show. Beginners, who might have started this past summer, are invited to write this department for whatever information is desired concerning the fluorescence phase of the hobby.

The Litts, of E. Stroudsburg, Pa., moved a few mountains from Maine and other New England localities, to their home. While in Maine, they banged away side by side with Miss Helen Whitehead, of the Monadnock Mineral Shop, Marlboro, New Hampshire.

Thank goodness, there is no law against moving parts of New England to Pennsylvania. Dr. Arthur Hopkins and Frank Hankins are trying their best to do just this. We can say, "We, too". Dr. Hopkins intended going over the dumps of the Strickland Feldspar Mine with a portable Mineralight at night. Wonder how he made out?

Hurlbut's Agate Shop, four miles south of Muscatine, Iowa, on Route 61, invites all rockhounds to visit. Cutting material and specimens for everyone are on display in this newly established center.

Garnets, emerald rough, diamond crystals, and zircons in several colors at extremely low prices are available from R. C. Romanella, 2266-93rd St., Jackson Heights, Long Island, N. Y. A 35 pt. rough diamond at $2.50 is certainly anything but high price.

We can hardly compose this department without pondering over the neat and sparkling specimens we obtained from The Bradleys about this time last year. The Bradleys have just about everything for the collector including collecting bags, picks, Geiger Counters, Mineralights and books.

Dave Burgess, of Santurce, Puerto Rico, sent in a specimen from Mona Island which is about 45 miles due west of Puerto Rico. Mona, once a pirate hangout, is now inhabited by a U. S. Lighthouse crew. The Island Mona, is honeycombed with caves in the phosphate rock from which the mineral Monite and Monetite have been found. The Burgess specimen is a gray-white mass of phosphate, which upon being gently crushed, yielded microscopic rough crystals which adhered to the description of Monetite, a clear to semi-opaque yellowish-white and slightly orange flat crystals and grains. We could observe no slightly-harder-than-matrix seams of the mineral Monite. Monite and Monetite are, of course, phosphate minerals, and are to be found only on Mona Island. Similar, though brighter yellow and orange crystals have been observed in the Florida Phosphate rock. We are now wondering just how close the Florida mineral is to Monetite. Very interesting, Dave Burgess.

Jade lovers should be intrigued by the ad in the last issue. H. T. McNeil is offering Massa Jade, a bluish-green nephrite of pleasing color. Quarter inch sawed slabs come at $1.50 and $2.00 per square inch.

The Baroque idea is still with us. Many dealers, whose ads appear in Rocks and Minerals Magazine, are offering thousands of highly polished tumbled stones of all kinds, shapes and sizes. Amateur jewelry makers find baroques extremely easy to work into beautiful silver and gold jewelry.

Without fear of being called repetitious, we are going to claim that the best thing that happened in new equipment in 1954 is Lapidabrade. We urge all grinding-wheel users to investigate this new type wheel.

George Sellers, of Philadelphia, visited New England localities just a few days ahead of us or maybe we would have found that aquamarine beryl crystal as long as his litle finger. His little finger is longer than ours. We visited the same localities after both of us had been directed by the New England expert, Miss Helen Whitehead. How come you did not get it first, Miss Helen? The Feldspar Quarries near Keene, New Hampshire are more than interesting. Very excellent specimens can still be found without too much backbreaking effort.

The specimens mentioned in J. C. Filer and Son's ad in the previous issue are just a few of the really fine groups of crystals listed in their fine catalog. If the thumbnail sizes are any indication of what the larger specimens are like, the ones they sent us not too long ago should mean that the cabinet sizes are superb.

A privately owned opal we saw a few months ago had the greenest fire we have ever seen. This specimen, mounted in a simple gold brooch, will be worth the price for many years to come. More than a few hundred dollars cannot buy a duplicate of this superior stone. To be able to buy such a stone, even if available, is out of the question for many of us. However, opal with lovely delicate fire can be bought very reasonably. Ace Lapidary, of Jamaica, N. Y., offer size 12x10 cabochons for $3.50.

Never, but never underestimate the power of a woman. Our hats are off (we never wear one . . . but) to Martha Hopkins, wife of the President of The Mineralogical Society of Pennsylvania, Dr. Arthur Hopkins, for her superb collection of Chinese snuff bottles, many of which are carved from gem materials. Rose quartz, jade, amethyst, serpentine, sunstone and other semi-precious materials are represented. Not the least interesting are the carvings which have been fused onto crude glass bottles.

If there is a fly around, swat it or spray it. If there is one mosquito in our bedroom, we cannot sleep until we have at least pulled out her hypodermic or bent it over so she cannot use it on us. Some people tolerate flies and will even buy them. These people cannot be blamed too much if the flies they buy are in Amber. Ernest Meier, of New York City, has some interesting pieces of Amber with imbedded flies, quite old fossil for $5.50 each.

Once in a blue moon, micromounters discover elongated Calcite scalenohedrons which are obviously hollow. These are the Quill Calcites; have been found in several states and world localities and are about as rare as the fine-stemmed toadstool Calcites. We believe they form in this way without the help of some acicular crystal which is supposed to have leached away, leaving the hollow center.

La Vida Lynch sent us about a dozen doubly terminated quartz points which run from micro to about one quarter inch in length. They are clear crystals taken from geodes collected in Kentucky and Indiana. Collectors of 'Locality' quartz should be interested.

Clayton Hamilton, who has been in the news lately, collected some very fine specimens of apatite, augite and tan colored scapolites in the same matrix while in Canada this early summer. The scapolites are nicely formed but do not fluoresce. Excellent blue sodalite and a very good grade of hackmanite were also found.

Plastic boxes, the ones which have a dozen or so compartments, are nice receptacles for thumbnail or slightly larger specimens. However, the boxes are usually stacked up and put away so that the smaller beauties actually have no display space of their own. The solution to this problem is very simple and the display method very attractive if the Cal-O-Mount plastic pedestal is used. These are only a dollar a dozen. Several dozen should take care of the average accumulation of the perfect, but smaller specimens and single crystals. Please write or mail your check to Cal. O. Gettings, 2001 Starr Avenue, Toledo 5, Ohio.

It takes much longer and much more money to accumulate enough single crystals for a crystal set if such crystals are obtained by the exchange method. Nearly all dealers have some few single crystals for sale at very low prices. E. M. Gunnell has deluxe crystal sets and fundamental sets with from twenty to twenty-eight crystals to the set. If sets are not wanted, write your needs to him.

Meerschaum has been a neglected mineral in this country. Carved objects such as pipes and figures were popular when Grandma was humming or whistling tunes from the Floridora Sextette. High quality Meerschaum is a collector's item, whether carved or in specimen pieces. A. G. Parser, Inc., of 15 West 44th Street, New York 36, N. Y., is currently selling small and large sizes of this interesting mineral. A working description comes with each order.

Our own small piece of Meerschaum (Sepiolite) was the only really thrilling mineral found by us some years ago at the old Brinton Quarry in Chester County, Pa., a Dana locality now prety well caput. This Brinton Sepiolite polishes by merely wetting the thumb and with a gliding pressure, the polish comes up to maximum. A very dry piece will float on water. Actually, it is not sea-froth in condensed form, nor is it the cuttle-bone of the squid from which the name Sepiolite was derived. It is a clay in which magnesium is the predominate mineral. Yellowish Sepiolite has been mistaken for Deweylite and the green variety has been misnamed blue or green Turquoise. All three minerals have been found in Chester and/or Delaware County, Pa.

While on the subject, hitting around Sepiolite and magnesium clays, we would like to take a guess as to what makes the water-filled quarry hole on the Foote Minerals property, Chester County, Pa., such a beautiful Turquoise blue. Quite nearby, was the old workings of the Gen. Trimble Mine in which Coeruleolactite had been found in small quantities. Perhaps the predominate mineral in the clays of this area are phosphoric rather than magnesian with just enough copper to color the waters a Turquoise blue.

We visited Corundum Hill twice this summer. Corundum Hill is a famous old locality near Unionville, Pa. On the first visit, we saw some massive corundum, but none of the fine crystals such as were found when the mine was worked many years ago. Fine quartz druses were found on our first trip and a very small sample of pearly white Euphyllite talc. The second trip produced excellent amphibole asbestos, dark serpentines and many mica types.

Mr. James B. Palmer, of 646 Humboldt St., Reno, Nevada, writes that he needs a terminated watermelon tourmaline from any source and around 2"x6". Mr. Palmer would also like to buy a nice beryl, terminated, about the same size. To save ourselves a lot of letter writing, we place the call in this department. Any offers? Neither crystal need be of gem quality.

We cannot get to see dealers' stocks throughout the country and we must rely, to some extent, on receiving dealer lists and catalogs so that we may help the dealer and the buyer.

Ward's of Rochester, N. Y., sent us a new batch of superbly printed and informative booklets and folders. Ward's have a fine stock of Meteorites . . . heavenly bodies . . . some all metal and some with stone and yellowish Olivine.

Wish we could see all of the dealers stocks. Another Vance Tankersley specimen was seen on a collector's shelf a few months ago. Mr. Tankersley operates the Desert Rose Trading Post in Sierra Blanca, Texas. The specimens offered by this firm are superb, indeed.

Those who find themselves in Montgomery County, Pa., and love history, nature and MINERALS, should visit the Audubon Bird Sanctuary, in Audubon, Pa. Wild birds in the area seem to know that they are welcome and safe. One may dig for copper, zinc, iron and lead minerals and find them, no less. Macro and micro specimens of Barite, Galena, Sphalerite, Herrengrundite on Sphalerite, Quartz, Chalcedony, Quartz psuedomorphs, Malachite, Azurite, Linarite, Anglesite, Cerussite, Fluorescent Hydrozincite, Cuprite, Hematite, Ankerite, Pyromorphite and many others were found in one day this summer. The more adventuresome may find specimens of excellent Chalcopyrite and the others mentioned in the waters of Mine Run and in the Perkiomen Creek. Admission is free and birds may be shot . . . with the camera only.

Mrs. H. B. Pavey, of Watsonville, Calif., sent us some excellent specimens of Stibnite from San Benito County. Mr. Frank L. Fleener, well-known to collectors everywhere, sent us three complete fern fossils from the famous Mazon Creek area. Both took us up on the offer of the French Chalcedony Buhrstone.

VERMICULITE MINING RECORD SET IN SEPTEMBER

The most vermiculite ore ever mined in a single day, 824 tons, came out of the Libby, Mont., mine on Sept. 10, 1954, according to the Zonolite Company, Chicago, operators of the mine and processors of the mineral.

Previously mining production had never exceeded 700 tons in one day. The new record is in anticipation of increasing fall sales of vermiculite which is widely used as a loose-fill insulation, plaster and concrete aggregate, soil conditioner, and chemical carrier.

FOSSIL DEPARTMENT

Conducted by A. ALLEN GRAFFHAM

Box 419, Ardmore, Oklahoma

MINERALS AND FOSSILS OF QUEEN HILL QUARRY

By ALLEN GRAFFHAM

Queen Hill Quarry is located just outside the tiny village of Rock Bluffs, Nebraska, on the banks of the Missouri River. It is a U. S. Army Engineer quarry for rip-rap that is used in flood control work along the river. Our last information on the quarry is that it is now closed and the new quarry at King Hill is being used for rip-rap.

Some one hundred feet of limestone and shale is exposed in the quarry at Queen Hill, and here are specimens to be found of interest to both the collector of fossils and minerals.

May through September are the best months for collecting as far as the weather is concerned. Earlier and later a chill wind comes off the river and makes collecting most unpleasant.

There is a great deal of danger here as huge blocks of limestone and shale occasionally fall off the cliff face. Extreme care should be exercised while collecting.

While the quarry was in operation, material was occasionally stock piled, and it was in these temporary dumps that most of our fine specimens were found. At present, there are a few dumps somewhat grown over by weeds and which have been combed by the Omaha Mineral club members and others.

The plate showing the section and notes on specimens to be found in each formation or member is self explanatory.

At the base of the quarry is the Plattsmouth limestone, which is white and massive with an occasional cavity of calcite and other crystals. While the calcite crystals are small, they are very interesting in form, and rival the English calcites for brilliance. On our first trip to the quarry, our largest calcite cavity was noted. This cavity was about four feet in diameter and had interesting folds of crystals extending out into the cavity. Unfortunately this cavity was close to a blast and the crystals were badly coated with mud and rock chips. After collecting only a couple of plates of the crystals for later checking, we left this cavity. As it turned out, this was a serious mistake as the crystal groups washed clean without visable damage to any crystal. One of the plates we collected that day is now in our collection. On other trips, smaller cavities were found; some with minute pyrite and marcasite crystals implanted on and in the calcites. However, we never found one that rivaled the brilliance and beauty of the material in the large cavity that we passed up.

Loose octahedrons, and octahedrons modified by the cube of pyrite, are the most interesting of the minerals found in the quarry. These are found in the black fissile Queen Hill Shale. Since this is the only black hard shale in the quarry, this horizon is easy to find. The octahedrons occur from minute crystals up to crystals nearly two inches along the face, although only two of the giant crystals were seen by the author. A crystal with one inch faces is considered quite a nice find and on our last day in the quarry only three such crystals were found. In the early days of collecting, we often passed up the chance to collect pyrites for the fossil collecting which the quarry affords. Now that we look back, we wish that we could have spent more time after the beautiful crystals. Incidentally, the crystals have skeletal faces and are very

difficult to clean. The only satisfactory method that we have found is to pick out the black shale with a pin vice or dental tool and then spend a good deal of time with a stiff bristled tooth brush and soap and water. The results are truly worth the effort expended on a fine crystal.

Sphalerite can be found in this quarry as well as an occasional crystal of barite. At the north end of the quarry, a considerable amount of sphalerite is dissiminated throughout the limestone. We believe that this is the first report of sphalerite in Nebraska.

Fossils

The rocks exposed in the quarry are Pennsylvanian in age and are primarily marine. All of the fossil recovered are marine varieties. The most common fossils, as is usually the case in Paleozoic outcrops, are brachiopods. Very beautiful specimens can be collected from the shale lenses in the Kereford Fm. The common genera encountered are *Hustedia, Composita, Dialasma, Chonetes, Lissochonetes, Dictyoclostus, Linoproductus, Neospirifer,* and *Punctospirifer.*

Pelecypods can be found in several layers in the quarry but they are most common in the upper portion of the Kereford shale and in a certain shaly zone in the Lecompton formation.

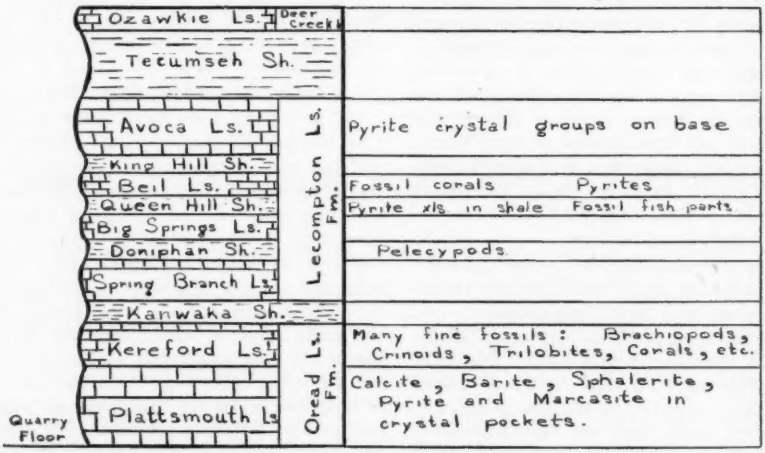
Corals of the solitary variety are common in the quarry and especially large, and nice specimens can be recovered from the Beil limestone. This genus bears the tongue twisting name of *Pseudozaphrentoides,* which was thought up by a paleontologist in Russia. *Lophophyllidium* and *Syringopora* are the other common corals that are found here.

Bryozoans are common in several horizons. The common genera are *Fenestella,* which occurs in fans resembling the modern *Gorgonia,* and *Rhombopora,* which is a stick like form.

Trilobites are one of the rare fossils of the quarry, but complete enrolled specimens of *Ditymopyge* have been recovered from the Kereford shale lenses. *Ameura* has been found as parts in the quarry.

QUEEN HILL QUARRY

These rocks belong to the Shawnee Group of the middle part of the Virgilian Series and are Pennsylvanian in age.



Partial and approximate section exposed in Government Quarry at Rock Bluffs, Nebraska.

Crinoids, though quite rare here, have never the less been found in surprising numbers. Complete crowns have occasionally been recovered and cups, especially of *Delocrinus,* can be found on almost every visit to the quarry by diligent search. The other crinoids noted were *Ethelocrinus, Endelocrinus, Plaxocrinus,* and *Oklahomacrinus.* The *Oklahomacrinus* were found on one occasion as four complete crowns resting in a small depression in a very large limestone slab after a large blast. These were collected with the aid of a sledge hammer.

Fossil fish parts and an occasional complete fossil fish can be found by diligently splitting the black fissile shale called the Queen Hill. This is also the shale that carries the pyrite crystals. A very beautiful complete fossil fish found by the author is now in the University of Nebraska collections. A more recent find of a fossil fish is now on display at the University of Nebraska State Museum in Lincoln. These Pennsylvanian fish are among the rarest of fossils and even a partially complete specimen is a real prize.

* * *

As I have accepted a job as micropaleontologist with the California-Ecuador Oil Company and will be leaving shortly for Guayaquil, Ecuador, I must give up the fossil department. I should like to express my appreciation to the many people who wrote letters and articles for the department during the time I have edited it.

FOSSILS

GEORGE C. OLMSTED
1129 James Blvd., Signal Mtn., Tennessee

In a recent group discussion someone asked:

"What is a fossil?"

It was brought out that some time ago the body of an Indian boy was found frozen in a stone crypt high in the Andes and that the evidence showed he had been there several hundred years.

Was he a fossil?

A few months ago the perfectly preserved body of a man was dug up in a Danish peat bed. It was estimated that he had been thrown in a lake some 2000 years ago.

Was he a fossil?

Present-day sled dogs have eaten the flesh of a perfectly preserved frozen woolly mammoth in the far north.

Was this animal a fossil?

Webster's Collegiate Dictionary defines the word as: "Originally, any rock, mineral, or any other object dug out of the earth. Now, any impression, or trace, of an animal or plant of past geological ages, which has been preserved in the earth's crust. The term includes footprints or tracks."

The Standard Dictionary idea is slightly different: "Any organic body so situated in the earth, as by being buried in solid rock or in earthy deposits, as to be capable of indefinite preservation; especially, such a body of prehistoric times. Less generally, one of certain inorganic objects or substances which in extinct or mineralized forms preserve in themselves records of the natural activities or phenomena of ancient geological ages, as solidified ripple-marks; also, buried records of human activities, even within historic times."

Shimer in, "An Introduction to the Study of Fossils," writes: "A fossil is the remains of a plant or animal, or the record of its presence, preserved in the rocks of the earth."

A bulletin on Fossils issued by the Colorado Museum of Natural History states that: "A fossil is some record, commonly preserved in rock of a kind of plant or animal which no longer exists as a living type. This, at least, is the ordinary sense of the word and more elaborate definitions are of small service to anyone."

A letter from a state geologist states: "The thickness of this formation is two or three thousand feet in its maximum extent, and is magnificently cross-bedded, being a fossil dune formation."

(Continued on page 625)

THE SAND COLLECTOR

Conducted by PETER ZODAC, Peekskill, N. Y.
Items on Interesting Sands Wanted. — Please Send Them In.

Allanite sand from Paicomo Canyon, Calif.

C. M. Jenni, 3129 Chadwick Dr., Los Angeles 32, Calif., sent us a few months ago our first sample of allanite sand. This is a medium grained blackish-gray sand consisting largely of lustrous black allanite (many are prismatic) with smoky quartz, black lustrous magnetite, white calcite, green epidote, black biotite and pinkish garnet.

"The sand comes from Paicomo Canyon, Los Angeles Co., Calif., an area where many rare minerals are found, including allanite and zircon."—on label.

Creek sand from Walden, Colo.

From Glen E. Kiser, Douglass, Kans., we have a sand sample that comes from Walden, Jackson Co., Colo. It is a coarse, (brown, colorless, smoky), and flesh colored feldspar. Some dark green opaque epidote xls also present.

"From Big Lake Creek near Walden, Colo."—on label.

Shell sand from Branford, Conn.

An interesting shell sand has been sent in by Howard Pate, Beach Place, Branford, Conn. This is a coarse, brownish and white sand. It consists chiefly of brown and white sea shells with minor amounts of quartz (smoky, reddish), flesh colored feldspar, black magnetite, dark gray mica schist and red slate.

"Sand from the beach in front of the home of the late Ella Wheeler Wilcox (1855-1919). Short Beach, Branford (New Haven Co.), Conn. (on Long Island Sound). The house is now a convalescent home."—on label.

Beach sand from De Soto N.M., Fla

"Thought you might like a sample of sand from the foot of De Soto National Memorial. It is located near the mouth of the Manatee River on Tampa Bay (Manatee Co.), Florida."—letter dated Aug. 4, 1954, from P. A. Secor, Box 238, Bradenton Beach, Fla.

This is a fine grained gray sand. It consists almost entirely of colorless quartz; some fragments of white sea shells also present. (some shells fl. pale yellow under long wave light). An interesting pamphlet describing the Memorial was also received from Mr. Secor.

River sand from Adel, Ga.

From the east bank of Little River, near Adel, Cook Co., Ga., we have a sand sample that was sent us by Glen E. Kiser, Douglass, Kans. This is a medium grained light gray sand consisting entirely of colorless quartz.

Quartz sand from Rock City, Kans.

Rock City in Ottawa County, Kans., is a geological oddity; it is described in this issue under "World News on Mineral Occurrences". From this locality we have 2 sand samples that were sent us by Miss Nora Lee Dennett, 242 S. Young, Wichita 12, Kans. The sands were taken from the roadway leading to the large concretions in Rock City. Both colors were under the same cap of solid rock.

One sample is a medium grained brown sand. It consists almost entirely of brown quartz with some silvery flakes of muscovite.

The other sample is gray in color due to less brown quartz (mostly smoky quartz) and of course plus the silvery muscovite.

Dune sand from Ogunquit, Maine

Ogunquit, York Co., Maine, is on the Atlantic Ocean. From the dunes on the beach we have a sand sample that was collected for us by Mrs. O. E. Looney, Lincolnville, Me. It is a fine grained grayish sand consisting entirely of quartz (colorless, brownish, smoky).

Beach sand from Kenwood Beach, Md.

Chesapeake Bay is the largest bay in the U.S. From Kenwood Beach (on Cheasapeake Bay) in Calvert Co., Md., we have a sand sample that was collected for us by the Editor's cousin, Mrs. Myrtle

Phillips, 4606-27th St., N. Arlington 7, Va. This is a medium grained light brown sand consisting entirely of quartz (brownish, some colorless and smoky).

Beach sand from near Montague. Mich.

Last August Mr. & Mrs. Ernest Cassells, 118 Pine St., Peekskill, N. Y., while on a trip to Michigan, collected for us a sand sample from a beach on Lake Michigan, near Montague, Muskegon Co., Mich. This is a fine grained grayish-brown sand consisting chiefly of quartz (colorless, brownish, red, brown, gray chalcedony) with tiny amounts of green epidote, black magnetite, and white shells.

"The sand was found near the north shore of the channel connecting Lake Michigan with White Lake."—on label

Quartz sand from Osborn, Mont.

From a gravel pit south of Osborn, Yellowstone Co., Mont., a sand sample was sent us by Ray D. Stratton, Worden, Mont. This is a medium grained dark gray sand. It consists chiefly of quartz (colorless, smoky, brownish, reddish), with some black magnetite, green gemmy spidote, and silvery muscovite.

River sand from Beatty, Nev.

This sand sample was sent in by P. O. Drury, P. O. Box 1028, Las Vegas, Nev. It is a medium grained gray sand, consisting of quartz (colorless and gemmy, smoky), feldspar (pink, red), opal (white, colorless), also some black ilmenite and black magnetite.

"From Armogosa River about 1 mile south of Beatty (Nye Co.), Nevada"—on label.

River sand from Bloomsbury, N. J.

"Sand comes from the Musconetcong River, Bloomsbury (Hunterdon Co.), N. J. If graphite is found disregard it because sand was found below an abandoned graphite mill."—on label of sample sent us by Clark P. McLean, 31 Main St., Bloomsbury, N. J.

This is a medium grained brownish sand. It consists chiefly of quartz (smoky, brownish) with rusty black magnetite and some brownish clay. Black graphite flakes also found (it came from the mill, as mentioned above).

Hurricane sand from Peekskill, N. Y.

On Sat., Sept 11, 1954, one of the heaviest rainstorms on record (a result of Hurricane "Edna") hit Peekskill. And how the rain did come down! For the first time that we have lived on Wells Street (since 1918), a deposit of sand was left in our gutter and a sample of it was collected.

This is a coarse dark gray sand. It consists chiefly of black coal (anthracite), reddish cinders, gray ash (furnace product), and quartz (smoky, brownish, whitish), with some smaller amounts of red brick, silvery muscovite, glass (colorless, bluish, white), gray granite, black magnetite, rusty iron, and green epidote.

Brook sand from Plymouth, Vt.

Mrs. Anne Walbridge, 520 Elm St., Montpelier, Vt., sent in a sand sample with the following note attached to it:

"Sand comes from a very, very small stream, besides cemetery in which President Cal Coolidge is buried. Plymouth (Windsor Co.), Vt."

This is a dark brown coarse sand. It consists of dark brown limonite, smoky quartz, mica schist and other rocks heavily stained brown by limonite. A small amount of black magnetite (stained brown by limonite) is also present.

Beach sand from Long Beach, Wash.

The post office directory lists Long Beach from California, Florida, Mississippi, New York and Washington. We have sand samples from each beach but the one from Florida. Our Washington sample was sent in a few weeks ago by Chas. R. Lamb, Long Beach, Wash. In his letter, dated Aug. 17, 1954, Mr. Lamb writes:

"I have just been informed of your magazine.

"I have been trying to find such a magazine for a long time, especially one that gives some space to the hobby of sand collecting. I have been collecting now for 6½ years and have 2618 samples from many parts of the world. Over a hundred countries and 85 islands. I am very much interested in contacting other sand collectors. Have many sands to exchange and help others. Will be happy to send sand from here to anyone. This beach here is said to be the longest beach of hard sand

(28 miles) that you can drive on in the world."

The sample sent us by Mr. Lamb is a fine grained dark gray sand. It consists chiefly of quartz (colorless, smoky, brownish), flesh color feldspar, and black magnetite. A few silvery flakes of muscovite also present.

Beach sand from Sitka, Alaska

Gordon Greenbank, Sitka, Alaska, sends in a sand sample from the beach of his city and also the following note, dated Oct. 11, 1954.

"Sitka is on Baranof Island in the Alexander Archipelago. It was the Russian capital and for many years the American capital. A few of the old Russian buildings remain.

"A good general map of the territory is—Alaska Map E, reprinted 1947. U.S. Geological Survey, Washington, D. C."

The sample is a dark medium grained sand. It consists chiefly of quartz (chiefly smoky, some colorless, also some red chalcedony) with dark gray balsalt and a small amount of black magnetite.

"From Sitka Airport (sea plane) — on label.

Beach sand from Southport, Queens., Australia

"A sand that is causing surprise and a lot of expenditure of capital its found on the sea coast from Southport in Queensland's southeast corner, on downwards to the New South Wales Northern River district. Fine white sand stretching under water well out to sea. Water over it is crystal clear. No minerals of industrial value in the sand but Boy, what a surfing beach! Miles and miles and miles of it, passing by a score of towns and cities, with winter sunshine, tropic foliage — pandanus palms, etc.—and the most picturesque volcanic mountains for a background, running shoulder on shoulder up to Mt. Lamington National Park, 3,600 feet high. Captain Cook's Mount Warning, a wildly impassible volcanic peak, is included in the set-up. "The Gold Coast" is the latest name for it and capital investment there is coming to resemble that in Miami, Fla., for approximately the same reason. Sand, in dunes and beaches with blazing sunlight when the southern states are under snow and stormy skies. Good fishing out to sea, too. Taylor, tuna, mackerel. Also reefs with coral and some whopping big blue parrot fish and groper for the spear-gunners, aqua lungs and frog-feet. Sharks, too, so keep your fingers crossed when swimming. And all because of sand. You wouldn't read about it. I'll be sending you some of it, never fear."—letter dated April 10, 1954, from Kelvin Green YMCA, Edward St., Brisbane, Queens, Australia.

The sand has arrived; it is fine grained and brownish peppered with lustrous black magnetite. It consists chiefly of quartz (colorless, smoky, brownish) and the magnetite. Some pinkish gemmy garnets also present.

Shell sand from Paradise Beach, Bahamas

William (Chip) Heineman 849 Washington St., Peekskill, N. Y., with his wife and son, went on a cruise last October to the Bahama Islands. From beautiful Paradise Beach (on Hog Island, across the harbor from Nassau, the chief city of the islands) he collected a sand sample for us. This is a cream colored, fine grained sand; all shell sand (chiefly white to cream, some pink). Some grains fl. yellow under long wave light.

On the return journey, their ship, Queen of Bermuda, got caught in a hurricane and for 30 hours the ship dipped and rolled at crazy angles so that about 75 per cent of the passengers got seasick.

Gold bearing sand from Haggert Creek, T. Y., Canada

"The enclosed sand sample is a semi-concentrate from a placer on Haggert Creek, Mayo District, Yukon Territory, Canada, approximately 300 miles north of Whitehorse. Placer operations have been carried on intermittently along Haggert Creek for the recovery of gold."—letter dated July 2, 1954, from Peter Tarassoff, 667 Gordon Ave., Verdun, Que., Canada.

The sample is a coarse, dark brown sand. It consists chiefly of smoky quartz, dark brown limonite, brassy pyrite, bronzy pyrrhotite, black magnetite with brownish limonite stains, colorless scheelite which fl. bluish under the Mineralight, and bright yellow gold. Some whitish mica schist also present.

Beach sand from South Point, Hawaii

South Point is the extreme southern tip

of the Island of Hawaii (the largest of the Hawaiian Islands). From a nearby beach, which is on the Pacific Ocean, we have a sand sample that was sent us by Miss Winifred Arnold, 2020 Magnolia Ave., Long Beach 6, Calif. Though the name of the beach is 'Green Sand Beach', in allusion to the color of the sand, the sample sent us is a medium grained, brown and black sand. It consists chiefly of sea shells (chiefly brown, some white, a little purple). Black basalt and green gemmy olivine are also present in considerable amount; likewise some black magnetite. It is possible that parts of the beach may be all olivine and thus deep green in color.

"This is from 'Green Sand Beach', the local name and only one I know. It is 3 or 4 miles from South Point on the island of Hawaii, and a rather remarkable place. It is a small beach with steep cliffs at both sides, not too difficult to get down to, but the getting up and out again is mighty hard on one's wind! The whole beach glints and glitters in the sun due to the fragments of olivine crystals. The sand varies a good deal in finess at different places on the beach."—on label.

Beach sand from Port Stewart, Ireland

Port Stewart is a little port on the northern coast of Ireland. From the beach of this town we have a sand sample that was sent us by Sandy Ramsey, 1015 Aikenhead Road, Kings Park, Glasgow S4, Scotland.

This is a medium grained dark brown sand. It consists chiefly of smoky quartz and sea shells (blue, brown, gray, white) with a small amount of black ilmenite and black magnetite.

Beach sand from Genoa, Italy

Genoa, the birthplace of Christopher Columbus, a city in northern Italy, is on the Bay of Genoa. From the beach (which is said to be a fine one) we have a sand sample that was collected for us on July 9, 1954 by Mr. and Mrs. James Azzaretti of Peekskill, N. Y., while on their trip to Italy. The Azzarettis are proprietors of Post Grill in Peekskill a favorite eating place for the Editor of R&M.

The sample is a medium grained gray sand. It consists chiefly of quartz (smoky, colorless) and flesh colored feldspar with minor amounts of black biotite, silvery muscovite and white sea shells; a tiny amount of black magnetite also present.

Chromite sand from Panama

Some few months ago we received a sand sample from Frank Wagner, Box 1486, Balboa, Canal Zone, who collected it about 11 miles S.E. of Colon, in Colon Province, Panama. The sand comes from the Quebrada Lopez River where it empties into the Chagres River.

This is a dark brownish-black, lustrous, medium grained sand. It consists chiefly of lustrous black octahedral xls of chromite and green epidote. A tiny amount of black magnetite and colorless quartz also present.

Shell sand from Carnoustie, Scotland

Carnoustie, Angus County, Scotland, is on the North Sea. From the beach of this town we have a sand sample that was collected for us by the Rev. Wm. J. Frazer, Moosic 7, Penn., who spent the summer in Scotland, exchanging pulpits with the Rev. William G. Tran of Forfar.

This is a coarse, brownish sand. It consists chiefly of shells (chiefly brownish, with white, also some blue) and quartz (colorless, smoky) and a tiny amount of black magnetite.

Quartz sand from Sicunusa, So. Africa

From a hillside near Sicunusa, Swaziland, So. Africa, we have a sand sample that was collected for us by F. C. M. Bawden, P. O. Box 1167, Johannesburg, South Africa.

This is a medium grained dark brown sand which is almost all quartz that has been stained brown by brown limonitic clay. Some brown limonitic clay and a tiny amount of black magnetite (stained brown by the clay) are also present.

River sand from Seville, Spain

M. L. Peterson, 933 N. Longfellow St., Arlington, Va., has sent us a sand sample collected from the Guadalquivir River in Seville, Seville Province, Spain.

This is a gray, medium grained sand. It consists of quartz (smoky, brown, red, colorless, rock crystal of which some slender xls seen) with feldspar (white, flesh color, pink), silvery muscovite, black biotite, some black magnetite, pinkish garnet, gray phyllite and white sea shells.

Club and Society Notes

Attention Secretaries—Please submit neat copies. Give dates and places of meetings. Check names for correct spelling.

East

Safety and Courtesy Are Synomous

(An open letter on Safety, to the membership of the Mineralogical Society of Pennsylvania from the "Keystone Newsletter.")

Do you know why many quarry owners will not grant permission to collectors? Did you know that it is the continued safety program of the Mineralogical Society of Pennsylvania that secures the cooperation of quarrymen and owners? Quarries can be safer than your own home or equally dangerous. Will you please cooperate so that nothing will happen to mar our record or cause all quarries to be closed to all mineral collectors. If you follow these simple rules at all times, either on a group trip or alone, you will be doing your part to insure continued collecting for all and will be showing the good sportsmanship for which mineral collectors are noted.

1. Always watch for the over-hang. Just because a rock has been sticking there since Triassic time is no insurance it is there forever.
2. Listen for loose walls and rotten rock. Hammering on such can cause a lot more than you expect to come down.
3. Talus or piles of loose blasted rock can avalanche and take you with them. Test the rocks for looseness before climbing. If a rock rolls move sideways.
4. Inspect a mineral location before collecting. A person could vanish down a sinkhole, so be sure in areas where they are found. Check overhang and other hazards before you turn your family loose to collect.
5. Ponds and pools in quarries are just as dangerous to small fry, as they are anywhere else.
6. Never allow stone throwing anywhere especially in mineral locations, where it can be most disastrous.
7. REMEMBER YOU ARE A GUEST WHILE IN A QUARRY. NEVER AT ANY TIME DISTURB TOOLS OR MACHINERY. This is one of the biggest "beefs" of owners, also that papers, bottles and garbage are dumped in quarries. Be a good guest and treat the quarry or mine site as your own place.
8. Watch out for the other fellow. As you hammer or roll a rock LOOK.
9. Keep an eye on and train children how to act. Keep them safe.
10. Dress for collecting with the right kind of shoes, etc. Hard hats, safety glasses, and gloves are a big help. Shorts are not recommended.

The Executive Committee of M. S. P. met to discuss the Safety Program for the members and guests on field trips. Cooperation of everyone was asked. Anyone who continually violates safety rules will be summoned before the committee for suitable action. An enlarged safety committee has been formed so please obey their warnings. M. S. P. wants its members to collect many minerals for a long long time. No specimen in the world is worth personal injury.

Members of the Safety Committee are: Florence Evans, Charles Belz, Robert Eisenhauer, Lehighton Donnelly, Bill Hunt, Richard Hickson, Robert Ennis and Charles Owens. Remember your best interest is their aim. Consider yourself a member of the SAFETY CRUSADE AND KEEP OUR RECORD CLEAN.

Mineralogical Society of Pennsylvania

July Field Trip

One hundred and fifty members and guests of M. S. P. enjoyed a perfect July day in Eureka Quarry. Bob Ennis, Wilkes Barre, was home on furlough. Jack Schemm of Allentown, made the find of the day; a large beautiful terminated smoky quartz crystal set in calcite crystals. Ken Fisher of Havertown, dug out one almost as large and nice. Many other finds were made. The swap box was full and was a greeting place. Roberta and Charles Wight of Stratford, Connecticut took the mileage prize. While the rockhounds hunted and hammered the quarry workmen repaired their machinery to an audience of "sidewalk superintendents". A good time was had by all.

August Field Trip

On Sunday, August 15th, 144 avid mineral collectors swarmed over Kibblehouse Quarry in Perkiomenville. Each blast at this quarry reveals good crystallized minerals. Among these are Natrolite, Epidote, Calcite, Pyrite, Aragonite, Chabazite, Stilbite, Heulandite, Malachite and Chlorite.

Gene Belz had a beautiful exhibit of Perkiomenville minerals as a guide showing what was to be found.

PHOTO BY HAROLD EVANS

A good time was had by all!
Julie Reed, official MSP geologist; protege, Dale Cordery

The Ennis family did a land office swapping business and the find of the day, about 30 specimens of Epidesmine, was made by Jimmy Irvine Sr. and Junior.

Friendly greetings and vacation talk were heard everywhere and everyone had a good time.

September Field Trip

On Sunday, September 11th over 200 members and friends of M. S. P. gathered at the Goodwin Homestead in the mineralized Unionville, Pennsylvania area adjacent to the mines at Corundum Hill. The Goodwins provided picnic tables, water and a sand box for the little ones. They also did a fine marking job with signs pointing to locations. The society extends its thanks to them.

Collecting was difficult, as it is an old location, but some good finds were made. David Evans found an almost perfect 3 inch Corundum crystal studded with smaller crystals. Len Morgan dug up some moss agate and Clay Hamilton found some Picrolite and Emery.

Swapping was good as usual and the junior members brought large boxes of excellent give aways, including Franklin fluorescents, Kentucky Fluorites and Prospect Park Zeolites.

The fact that collecting wasn't very good didn't bother us as the members are so friendly that many of us have been accused of coming on trips just to hold bull sessions with our friends, and, this could be true.

Gerry & Will Shulman,
Co-Chairman Publicity Committee
113 Huntington Terrace,
Newark 8, N. J.

Westchester Mineral & Gem Society

A mineral club has been formed in Westchester County — the Westchester Mineral and Gem Society — which meets once a month in the County Center, White Plains, N. Y. Membership is open to all Westchester County residents interested in various phases of mineralogy, including amateur and professional mineralogists and gem collectors.

The club's program will include field trips to mines and quarries, talks on geology and gemology, exhibits and movies. Mrs. Mayzette Golan of White Plains is acting chairman and Mrs. Peggy Nielsen, 8 Mohican Pk., Dobbs Ferry, N. Y., is acting secretary.

New York Mineralogical Club, Inc.
Minutes of Annual Meeting, May 19, 1954

The annual meeting of the New York Mineralogical Club, Inc. was held on May 19 in Philosophy Hall, Columbia University, New York City. Approximately 105 members attended.

Dr. Stenbuck, President, presided and called for order at 8 P. M.

The chair announced that one of our best known and oldest members, Mr. Gilman S. Stanton, passed away, and a moment of silence was held in his memory.

The Secretary sent a letter of sympathy to Mrs. Stanton.

A field trip sponsored by the Eastern Federation of Min. and Lap. Societies was announced to be held on June 26-27, 1954, and that the objective was the well known Strickland Quarry near Portland, Conn.

Mr. Grahl reported that he had been scratching around on the cleared site of a housing project in the Bronx and discovered well defined glacial scratches.

Mr. Rothstein recently returned with 3 other members of the club from Cowee Creek, N. Carolina, displayed the ruby and sapphire loot obtained from the gravels of the Cowee Creek area in the vicinity of the Weaver Gibson property. Some of the ruby was sure "purty" and well worth the effort.

Mr. Fred Hayden read the annual financial report which indicated the club was well stacked. Mr. Hayden's report was accepted on a motion made, seconded and carried.

Dr. Fred Pough displayed free samples af amethyst crystal groups taken by him from a vein in the Manhattan Schist. He discovered this occurrence in an excavation at Dodgewood Road and Independence Ave., Bronx, New York, and seems to be the first reported occurrence of amethyst in N. Y. City. (2nd Editor). The crystals were small and of pale color but some of it was cuttable. To prove it Dr. Pough displayed 4 small stones cut and polished from the material he obtained.

Mr. Ted Schoen displayed actinolite crystals found in a road cut on the Cross Country Pkway between Tarrytown and Tuckahoe, N. Y. and stated that these cuts were well worth watching as construction continued.

The program began at 8:30 P. M. Dr. Stenbuck lectured on the high lights of his Trip to Mexico Number III. This trip taken in the Fall of 1953 was the most productive of all of the trips taken by him and the club enjoyed the excellence of his color photography as the scenic and mineralogical interests of this country were shown on the screen. Dr. Stenbuck finally found the pink garnet area for which he had searched so often. The generous applause of the members showed their keen appreciation for this program, and his subgobal peregrinations.

The social followed. As usual the hall was buzzin till the keg was drained. The table was well covered with tasty tid-bits for the ones who cared to boost their caloric intake and the samovar was tried by some. But it was odd how fast that crowd dissipated when the keg sputtered out, approximately at 11:30 P. M.

Respectfully submitted,
Victor Pribil, Secretary
47-18 37th Street
Long Island City 1, New York

Lapidary & Gem Society of New York
Meeting of Wed., Sept. 29, 1954

Meeting was called to order at 8:30 p.m. Mr. Seymour Schweitzer, Vice President, in the Chair. It was announced again that our meeting night has been changed to the second Tuesday and the fourth Wednesday in the month.

Mr. George Herron turned a notice over to the Secretary announcing the offer of a free booklet on Norton grinding materials and the club will send away for enough to cover the membership.

Mr. and Mrs. Fourtane of Sausalito, California, were staying at the Hotel Paris *and* Martin Walter, one of the stalwarts of our club as well as the manager of the hotel, introduced them to the club. They showed us some fascinating jewelry. We are always glad *to* see Western faces and Western agates and being one of the comparatively new lapidary clubs we welcome any bretheren who visit the Big City.

The speaker of the evening was Mr. John Altmann of the Australian Gem Trading Co. of Melbourne, Australia, who gave us a fascinating talk on opals. A vivid story was portrayed of the history of the opal fields at Lightning Ridge, White Cliffs, Queensland and the new discoveries in South Australia. He traced the popularization of the black opal and the introduction of the Australian white opal to the world via Idar Oberstein. Moving pictures of the rugged life the miners lead in the almost inaccessible, waterless, interior were shown as Mr. Altmann gave a commentary on the way the opals find their way to the gem market and then out into the world. The opals are mined from pits dug down 100 feet or more using pick axes and hand tools before the opal layer is reached and broken thru.

Finally Mr. Altmann went thru the grinding and polishing stages, first telling how to orient the stone for cutting. He advocated the use of 12 inch dop sticks with 300 grit on a horizontal wood wheel—then the same grit on a rock hard horizontal felt wheel and after a careful washing on to opticians rouge on rock hard felt wheel again. The edges he rubs off with 200 carbon paper to avoid splitting.

Due to the lateness of the hour we had no opportunity to discuss cutting techniques but

there was a lengthy discussion, ending with a rising vote of thanks. Mr. Altmann had some rough for sale at the end of the meeting and was most gracious with his time afterward.

Joe Rothstein, Sec.
255 W. 84th St.
New York 24, N. Y.

Stamford Museum Mineralogical Society

The Stamford Museum Mineralogical Society, is a new organization, having been formed early last spring. Our purpose is to bring together all individuals, living in Stamford and surrounding areas, who are interested in mineralogy and other earth sciences. Also we are affiliated with and are a part of the activities of the Stamford Museum. Being affiliated with the museum we are trying to bring to the general public a keen awareness of the vital role minerals and other earth products play in our culture, art, and civilization.

We meet every second Tuesday in the Lecture Hall at the Stamford Museum at 8:00 p.m. (Museum phone is Stamford 3-4669).

Julius H. Preston
100 Strawberry Hill
Stamford, Conn.

North Jersey Mineralogical Society

The North Jersey Mineralogical Society opened its fall season according to traditional custom with a symposium on the summer mineral collecting experiences of its members.

The meeting was held September 9th in Paterson Museum with an attendance of approximately 72, including several guests. Following an extended business session, the collectors identified and discussed their specimens.

Wilfred Welsh, president of the Society, and Mrs. Welsh took a trip through the West from which they had just returned, and had not had time to prepare all their acquisitions for display. They made up for the lack by showing only one specimen—the halves of a big geode from Iowa. The geode was nearly a foot in diameter, was lined with myriads of clear quartz crystals, and was mounted in plastic material. They had purchased it from a dealer whose farm they said yielded such specimens in all sizes.

Several collectors have regretfully come to the conclusion that more and more they have to buy their minerals. Compensation for loss of the joy of gathering minerals from their native habitat must be found in the knowledge that those purchased from dealers will be finer specimens. Dealers cannot sell poor minerals and remain in business.

Mr. and Mrs. Harold Weimann also took a western trip and displayed two large fluorite pieces they purchased in Rosiclare, Ill. One was deep purple with drusy white coatings, and the other was paler purple and clear. They reported that at 104 degrees in the shade they didn't feel like hunting that day, and that they would not have found any such specimens if they had.

William C. Casperson, Curator of the Museum, showed several finely crystallized Franklin, N. J., zinc minerals, some of which he had purchased for the Museum collections, others for his personal collection. They included crystals of mooreite on chalcophanite, microscopic tufts of chlorophoenicite, small reddish purple crystals of tephroite, smaller crystals of larsenite, and massive nasonite. He also presented an excellent specimen of harmotome from Dumbarton, Scotland.

Wesley Hayes displayed a box of scheelite specimens he had collected from the old mine at Trumbull, Conn., which he offered for distribution. They were eagerly picked up.

Harold Gabriels, treasurer of the Society, showed a number of large specimens of pegmatite minerals, all of which he had personally collected in Connecticut and Maine. From Black Mountain, Rumford, Maine, he brought back numerous tourmalines, red, blue, green and black, some in cleavelandite and some in muscovite; yellow lepidolite, ordinary violet lepidolite, and the finely crystallized variety for which Black Mountain is famous. From Newry, Maine, he reported plenty of spodumene. He had one large crystal coated with yellow mica, and others; also black tourmaline in actinolite schist, and green tourmalines. There was a big chunk of rose quartz from Albany, Maine, and from the Strickland quarry at Portland, Conn., he had manganapatite, cookeite with fine small smoky quartz crystals, and fluorite in feldspar.

Trill Seiber, a 12-year old enthusiast, displayed two large pieces of limestone which he had gathered at Clinton, N. J. Pockets in them were filled with small calcite crystals.

Russ De Roo showed a cabinet filled with quartz crystals he had collected at Ellenville, Herkimer, Rhinebeck and Montgomery County, all in New York. He also had hexagonite from New York, and from Great Notch, N. J., good amethyst crystals with copper minerals, and small calcite crystals coated with chrysocolla and malachite.

Gene Vitali had collected in Connecticut. He showed a well terminated pale pink beryl crystal from Haddam Neck with shattered pale green beryl in the same specimen; opaque yellowish beryl from East Hampton, pyrite and siderite from Roxbury, from Haledon, N. J., near his home, he had pale yellowish prehnite in individual crystals, stilbite, apophyllite, pyrite crystals on prehnite, and one nearly half-inch crystal of sphalerite on prehnite.

The 15-minute mineral study was led by Miss Alypia Wendt whose topic was Iron. She talked on iron in general and New Jersey iron in particular. Having lived in Boonton all her life, she had much information about the iron industry formerly centered in North Jersey, and told of how as a youngster she had watched at night as the rolling mills spun out their red hot product. She displayed a case of specimens showing the many varieties in which iron occurs.

The leader at the October meeting will be Ray V. Jones.

October Meeting

A two-months trip through the Belgian Congo for minerals, adventure and pictures by Mr. and Mrs. Joseph Kuchar was unfolded by them to the North Jersey Mineralogical Society at its October meeting held in Paterson Museum.

They flew to Central Africa via Belgium, travelled about 9,000 miles by automobile and flew back to New York. They visited copper mines, tin mines, tungsten mines and others; by the use of English, French and sign language they were always able to make themselves understood; they found many varied kinds of hotel and camp accommodations, some of them very modern; they saw and photographed animals of all kinds, including herds of elephants and hippopotami; in their rented car they crossed rivers on all sorts of ferries; they visited native villages of mud and grass huts, up-to-date towns with new houses and apartments, areas teeming with industrial activity and areas of little development where corn is planted among tree stumps and allowed to grow if it will.

Mr. Kuchar, a member of the society, illustrated his talk with a map he had made showing the general area of their trip and locations of special points of interest to them. Among the mineral specimens he displayed were fine specimens of malachite, cassiterite, erythrite and other ores, with some of the concentrates and metals. His pictures included both stills and movies, all in gorgeous color.

He said they found it much easier to get into small mining areas than into large ones, and some were strictly forbidden ground. Much of the copper is malachite, he said, and showed a view of one big mine in which the whole area was in the bright dark green of this mineral. He had cut some of his specimens into cabochons and paperweights, and they showed interesting markings and brilliant polish.

With guides Mr. and Mrs. Kuchar climbed a volcano in the Rift Valley, explored its crater and took pictures showing vents emitting steam and sulphur and showed their audience samples of lava from a spatter cone. Mr. Kuchar said this and other volcanoes in the area are still active and that the one they visited had erupted some months later.

All the natives, including the pygmies, were friendly, he said, and most of them were eager to pose for pictures. Many of them had worked in the movies, it turned out, and at several villages dances and athletic shows were staged for the visitors.

Among his display specimens were several of copal. This is not a mineral but a rosin used in the manufacture of varnish. Mr. Kuchar said it occurs as a fossil and the native blacks dig it out of the ground.

The North Jersey Mineralogical Society will hold its 100th meeting in December. Plans are underway for a celebration of the occasion with arrangements in charge of the social and program committees jointly. The society was started in 1945 with half a dozen members. It has grown with the growth of general interest in minerals and now numbers 178 members. Meetings are held the second Thursday evening of each month in the Paterson Museum. Wilfred Welsh is the current presiding officer. The organization has only three past presidents: William C. Casperson, Curator of the Museum and founder of the society; William B. Aitken who is also a past president of the Eastern Federation of Mineralogical and Lapidary Societies; and Henry C. Mullner who was forced to decline election to a second term because of ill health.

Marian B. Casperson
Publicity Chairman
9-11 Hamilton Street
Paterson 1, N. J.

New Haven Mineral Club

The annual meeting of the New Haven Mineral Club was held at Peabody Museum on Monday Oct. 12th and the following officers were elected to serve the 1954-55 season. President, Miss Sarah Davis; Vice President, Mr. Raymond Ellis; Sec., Mrs. Eva Cummings; and Treas., Mr. L. J. Sweetman.

Mr. Fred Chesson of Waterbury demonstrated a Geiger Counter designed for general purposes. He constructed the machine in such a manner that all the elements of its mechanism could be seen through the transparent plastic case. Mr. Chesson stated that the material needed to assemble a similar instrument could be obtained for less than $15.

No program schedule was announced for the winter months but two members will be assigned to present monographs on two minerals each at regular meetings. It is anticipated that assigning a portion of each meeting to the study of four minerals will assist beginners and bring out points of interest not generally known to more advanced members.

Carl L. Hartshorn
386 Union Ave.,
West Haven, Conn.

Gem Cutters Guild of Baltimore, Inc.

The Gem Cutters' Guild of Baltimore has received third prize for its over all group display of lapidary work submitted at the convention of the Eastern Federation of Lapidary and Mineralogical Societies held in Miami, Florida, from October 12th through the 16th.

Also bringing honor to himself and to Baltimore as well, Mr. James W Anderson, founder and president emeritus of the Baltimore Guild, won first prize for the best individual display of polished slabs, and still another first prize for his display of lapidary work mounted in silver and other metals. Mr. Anderson's silver table service with handles or decorations of beautifully polished stones is nationally known.

Mrs. A. D. Emmart
Publicity Chairman
3551 Newland Road
Baltimore 18, Md.

South

Georgia Mineral Society

Dr. Frank A. Daniel was installed as president of the Georgia Mineral Society at its annual meeting at Georgia Tech Dining Hall on October 11. Dr. Daniel is a charter member of the organization which was formed in Atlanta nearly twenty years ago and has about 300 members.

Mrs. Jasper N. Donaldson was also installed as chairman of the Gem Club which is a section of the Georgia Mineral Society devoted to the study of gem minerals.

J. R. Chapman, retiring president, presented Col. Orville M. Hewitt, U.S.A. retired, of Ashville, N. C., who discussed mineral collecting in his home state. Col. Hewitt is president of the Southern Appalachian Mineral Society with headquarters in Ashville.

Other officers installed at the mineral meeting were J. R. Chapman, vice-president and secretary; S. P. Cronheim, treasurer; Dr. Lane Mitchell, museum curator; Dr. A. S. Furcron, editor of the MINERAL NEWS LETTER, and Erna Lee Mason, corresponding secretary.

The Georgia mineral group also joined the Southern Appalachian Society for a field trip to Graves Mountain, Georgia on October 23. Rutile, lazulite, pyrophyllite, kyanite were found by the hobbyists. The mountain yielded its mineral treasures in abundance, the day was ideal, and in the evening Rev. Owen Hoffman, a member who resides in nearby Washington, entertained the group with an exhibition of his massive collection of fluorescent minerals.

Erna Lee Mason,
Corresponding Secretary,
c/o State Health Department
Atlanta, Georgia

New Central Texas Gem Club Formed

Right on the Western fringe of the great Llano Uplift mineralized area, the Central Texas Gem and Mineral Society was organized on August 29, with 17 charter members. The club started its existence in a unique manner—with a show of gems and minerals owned by interested collectors from the area. The first meeting was held at Brady, Texas, with over 100 present, and excellent displays from San Angelo, Coleman, Brownwood, Brady and San Antonio collectors were shown.

The club plans a monthly show of members work and collections, to be held at 2:00 P.M. the last Sunday of each month, and rotating to Brownwood, Abilene, Coleman and Brady Texas. The next show will be held at Brownwood, Texas, the place of meeting not yet announced.

Elected President of the new club was Glenn T. Towrance, 1905 12th at "H" St., Brownwood, Texas; Vice-President, Dr. Erwin H. Buch 3441 S. 10th St., Abilene, Texas; Sec-Treas., Mrs. John E. Myers, 1511 N. Grant St., Brady, Texas. Chairmen of Field Trip Committees were named as follows: Gem and Mineral— Earl Clary, 310 E. Walnut St., Coleman, Texas; Fossil—Dr. Cyrus N. Ray, 609 Orange St., Abilene, Texas; Sales and Display—John E. Myers, 1511 N. Grant St., Brady, Texas.

The location of the club is close to the great Llano area, with its multitude of gems and minerals, particularly the widely known Texas topaz of Mason County, of which John E. Myers is an adept finder (sometimes called "Steamshovel" for his dirt-throwing proclivities when at the bottom of a topaz-creek hole. Likewise, the Brownwood area has yielded some fine mineral specimens, especially pink and red celestite, some in very large masses and as linings in geodes. Strontium was mined commercially during the last war in this area.

It is expected that the new club will add additional members with each new town in which it meets, and its rotating idea is perhaps a fine solution for a group of towns none of whom have enough rock hobbyists to form a club entirely of their own, yet are close enough to unite us a group.

(Reported by Hugh Leiper,
1700 Rabb Road,
Austin, Texas).

Oklahoma Mineral & Gem Society

The Oklahoma Mineral & Gem Society held its 8th annual free show on Sunday, October 17, 1954, in Oklahoma City. Doors were open to the general public for 5 hours during the afternoon and several hundred guests were registered, including approximately 25 prospective new members who expressed a desire to join the society.

This year, the emphasis was on quality rather than quantity. There were 15 excellent individual displays and one commercial exhibit. One table was covered with a piece of green carpet cut in the outline form of the state of Oklahoma. Upon this, in appropriate places, were placed various specimens of rocks and minerals indigenous to Oklahoma. A lighted show case featured the 6 most important copper ores. This case was flanked by large easels carrying typed factual matter about each of the six ores.

One booth displayed lamp shades made from slabs of colorful agates; another featured an ornate window made of the same materials; but the visiting public probably voiced its approval most frequently over the hand-made jewelry, copper and silver wire necklaces, jade, turitella and tigereye bracelets and rings, Montana agate pendants and earrings, amethyst and citrine baroque bolo necklaces, chrysocolla baroque earrings and rock crystal earrings and necklaces.

Donations of both cutting material and specimens to the club by the members was assembled for sale in slab trays and a grab bag box, from which the club realized $60.00.

The junior members set up two nice dis-

plays, one of which was a covered case of fluorescent minerals.

For the benefit of the uninitiated, a 16 inch diamond slab saw and a small tumbling machine were operated and diamond grinding wheels and a faceting head were shown. The frequently expressed opinion of both members and guests was that this was the best show in the club's history

Mrs. Domer L. Howard
1229 N. W. 47th
Oklahoma City, Okla..

El Paso Geology Society

The El Paso Geology Society has completed a field examination of important mineral deposits in the Hudspeth County mining area. The examination embraced the Casner Gypsum Company quarry approximately 75 miles east of El Paso, a survey of the Bonanza and Alice Ray Zinc mines near the ranch home of Mr. Ed Love some 86 miles east of El Paso and an inspection of the extensive Talc deposit operated by the South-western Talc Corporation a short distance east of Sierra Blanca.

The Gypsum in the Casner deposit is a white and yellow banded material with bandings showing a number of folds. In this area is also to be found Alabaster of a fine grained variety. The quarry contains a crushing plant so that both chunk and ground Gypsum are produced to counteract salts in water used for irrigation.

The Zinc mines visited, namely the Bonanza and Alice Ray, have, in the past, produced ore valued at more than $100,000.00. This is the only substantial Texas production of Zinc. The ore body is represented by a series of Quartz veins in the country rock of Quartz Syenite Porphyry. The sheeted Zone of ore is marked by a Topographical trench. Other minerals found at this location are Galena, Chalcopyrite, Wulfenite, Sphalerite and Oxidized Copper minerals.

A few miles south of the Zinc properties is a mountainous area where Granite and Porphyry have altered Limestone to Andradite and Grossularite Garnet. This green and yellow-green Garnet is well crystallized and fills the bed of an arroyo for a considerable distance. This particular location is highly mineralized and members of the group found many interesting minerals, including Specular Hematite, Quartz Crystals, unusual Garnet clusters and an outcropping of crystallized pink Rhodochrosite in combination with Pyrite.

At least four cars of Talc per week are shipped from the deposit at Eagle Flat by the Southwestern Talc Corporation. This is an unusually large deposit of Talc being approximately 10 miles in length, about 300 feet in width and some 60 feet in depth. It is in an area in which the rocks have been greatly distorted. The Talc is unusually pure. It is very soft and has a greasy feel. It is usually foliated massive and is of silvery white to light grey in color. In composition it is essentially a metasilicate of magnesium. Among other uses, it is important in the manufacture of soapstone used for washtubs, sinks, tops, switchboards, hearth stones, furnace linings, the tips of gas burners, tailors' chalk, slate pencils and carved ornaments. In powdered form it is used in toilet powders and as a lubricant.

Other localities visited included Copper prospects northeast of Allamore and a large deposit of Bentonite some 66 miles east of El Paso nar Highway 80.

Important mineral specimens obtained by the Society have been presented to the Texas Western College Museum.

E. M. Barron,
Chairman
2307 North Mesa
El Paso, Texas

Mid-West

Chicago Rocks and Minerals Society

At the monthly meeting of Chicago Rocks and Minerals society, Oct. 9, president, Addison Avery, delivered a lecture on the aborigine's use of stone and metal. He displayed and described selected specimens from his large collection from some 28 states of such artifacts as arrow and spear heads, implements, digging tools, ceremonial objects and ornaments.

Most of the specimens represent material gathered from extensive field trips in the deep South and East.

St. Louis Mineral & Gem Society

"The members of the St. Louis Mineral & Gem Society have accomplished two objectives this year, both of which will be produced this fall. The first is an exhibit by the members of the Society during the entire month of November at the Main Branch of the St. Louis Public Library at 14th & Pine Streets. The exhibit will feature a display of Missouri rocks as well as various crystals and a large assortment of gems and minerals .

The second accomplishment is the publishing of a monthly bulletin by the Club. A contest was conducted to secure a name and "Rock Lore" was chosen. The design for the cover has been approved and "Rock Lore" should be available in the very near future.

Mrs. R. J. Kleis, Secretary
10012 St. Martha Lane
St. Ann, Missouri

Wichita Gem & Mineral Society

Eyebrows are usually raised when a person mentions a silver boom in Kansas but the state enjoyed such an event in 1879. It all occurred after a Colorado miner happened by some quartzite deposits South of Yates Center in eastern Kansas. He declared silver was to be found so the quick-money boys came and started to dig. Some of the shafts went down 40 feet before the miners decided Kansas was no place to hunt silver.

Members of the Wichita Gem & Mineral Society visited the site of the old diggings on the September field trip and gathered specimens of quartzite. The quartzite comes in various colors and takes a fine polish. The society members did no digging for silver, in fact, the old shafts were all filled.

A few miles away is one of the few, if not only outcropping of granite in the state. This granite is collected mainly as a curiosity as Kansas is simply not a granite state and occurrence is rare. Fine flint and a metamorphized limestone that could be called marble was found here. The society members ended the day with collecting crinoids, trilobites, coral and other specimens that used to flourish when Kansas was a sea. To do this, the society visited a stone quarry near the granite site.

Arch O'Bryant
% Wichita Eagle
Wichita 1, Kans.

Black Hills Mineral Society

The Black Hills Mineral Society went on a field trip to the black agate helds near Scenic, South Dakota, which is in the heart of the Badlands on Sunday, September 19. Several members reported good finds as well as finding some good banded Fairburn agates.

The next regular monthly meeting will be Friday night, October 8. At this meeting will be shown colored slides on "The Origin of Minerals."

Mrs. Fred Hammerquist,
Corresponding Secretary
1224 West Boulevard
Rapid City, South Dakota

Rocky Mountains

Cheyenne Mineral & Gem Society

The Cheyenne Mineral & Gem Society held their Sept. meeting at the Hospitality House with 65 members present.

Roy Bible gave a talk on The Great Pyramid of Gizeh, the most gigantic lapidary project of the ages. He illustrated his talk with a chart showing a cross section of the great pyramid, its rooms and passages.

Following the program refreshments were served and the meeting then resolved into the usual friendly rock talk and showing of bragging pieces.

Mr. & Mrs. R. J. Laughlin. appeared on Marge O'Brians 'Hobby Corner' Television show, Thurs. nite Sept. 9. They showed their jewelry, which they design and make and told about the stones used in each piece. The Laughlins do all their own lapidary work.

Mrs. R. J. Laughlin, Corres. Sec.
204 E. 3rd Ave.
Cheyenne, Wyo.

South-West

Mineralogical Society of Arizona

The Mineralogical Society of Arizona resumed its regular meetings October 1st with color slides of micro-mounts from the collection of Arthur L. Flagg. The photographs were taken by Floyd Getsinger with a special camera which he built for the purpose. Methods of photographing minerals were discussed.

At the October 15th meeting a motion picture from the Shell Oil Co. entitled, "The Birth of an Oil Field" was shown. Copper specimens were displayed and the various phases of copper studied.

The first field trip of the season was taken October 24th to Big Bug Creek in Central Arizona, where two old mines were visited. Calcite with dark spots as yet unidentified, were part of the finds. The trip was supervised by Joe Harris, with lunch at the Otis Paddox cabin. About 80 attended.

During the summer, three informal meetings were held; one at the home of Berlie Robart, with kodachromes shown by Floyd Getsinger; one at Mary Probert's. Miss Probert showed kodachromes taken by herself on a hike to the bottom of Grand Canyon. And one meeting was at the Jim Blakley's. The feature of the evening was a mineral quiz.

Ida Smith, Cor. Secy.
2010 West Jefferson,
Phoenix, Arizona

West

Delvers Gem and Mineral Society

Delvers Gem and Mineral Society of Downey, California, at their September meeting put business aside for a tour by slides and narration of the Silverton, Colorado Mining District with Mr. Marion Speers of the Western Trails Museum. Mr. Speers is capable of describing every mine and its owners in a wide area. His slides showed abandoned mines, dumps, lofty peaks of the San Juans, scattered rocks and the remains of bustling towns in the days he lived in Eureka and worked at the Sunnyside Mine. His stories of the area were historical as well as amusing. He gave the details of assaying ore, the use of crucible and cupel, and a thirty pound hammer for breaking up ore in the early days. He has a very interesting museum at Huntington Beach.

Our field trip will be to Boron and Castle Butte for petrified wood.

Mrs. Mildred Gremli, Publicity
939 Reposado Dr.
La Habra, Calif.

The Los Angeles Lapidary Society

The material was good and the bidding was high at the annual auction held by the Los Angeles Lapidary Society at their September meeting. In one hour, auctioneer Jack Gaston and several volunteer assistants managed to sell $97.35 worth of assorted rocks—brought and bought by members. (An anonymous doner who likes round figures brought this total to an even $100). This money was raised to purchase refreshments and prizes for the annual picnic held Sunday, Sept. 26, at Tapia Park.

Regular meetings of the Los Angeles Lapidary Society are held at 8:00 P.M. the first Monday of each month at Van Ness Playground Auditorium, 5720 2nd Ave., Los Angeles. Visitors are cordially invited to attend.

Maxine Reams
Corresponding Secretary
6110 Rimpau Blvd.
Los Angeles, 43, Calif

Los Angeles Mineralogical Society

Dr. Joseph Murdock, head of the Geological Department in the University of California at Los Angeles, was guest speaker when the Los Angeles Mineralogical Society celebrated the 22nd anniversary of its founding, Thursday evening, October 21, at the Premiere Cafeteria.

Dr. Murdock spoke on the topic "Mineral Locations in Brazil and Sweden. Kodachrome slides illustrated his talk. He also brought a display of minerals collected in the Pegmatite regions of the two countries as well as some rare specimens from Denmark and the Island of Skye. This last mentioned location was a subject for special study by the International Geological Congress which Dr. Murdock attended in 1948.

Members of the Society had the privilege of studying two other special displays: a collection of rare copper specimens, exhibited by Mr. and Mrs. William Thomas, and one featurning iron minerals from the collection of Dr. P. A. Foster.

Past presidents of the organization were welcomed and all members enjoyed the huge birthday cake during a social hour which followed the formal meeting.

Mrs. Edith Donner
Acting Publicity Chairman
2120 Oak Glen Place
Los Angeles 39, Calif.

Her Favorite Magazine!

Editor R&M:

Please renew my subscription for R&M. It is my favorite magazine and brings me much pleasure.

Edna McMahan,
11 Harris Ave.,
Battle Creek, Mich.

Aug. 20, 1954

A Dollar Well Spent!

Editor R&M:

Better take this spare (?) moment and drop you a line. That little ad in R&M just about wrecked me. I expected 8 or 10 replies, received very close to 60. I ran out of fossils, ran out of petrified wood—dug up a mountain and so sent more. Did get two-thirds supplied, then ran out of material again. Used a pint of ink apologizing to the late comers whom I could not supply.

For my efforts I got from the very best to the very poorest, but it was an awful lot of fun. Now to take a week and rest up.

Next time I place an ad in R&M I will hire an office staff before I start!

G. J. Gelston
Box 83,
Torrance, Pa.

Sept. 15, 1954

A Gemmologist in Ceylon

(Continued from page 591)

the difference between a sapphire and a piece of blue metal.

I also visited the ancient town of Galle which is 72 miles from Colombo. It is a centre of so-called gem cutting. To one who has a special interest in cutting, it was a tragic thing to see such "butchery." There are, however, some good native cutters, who cut to produce maximum internal reflection, realizing that a small well-cut stone is more valuable than a large badly cut one.

And now, on the homeward trip, my experience having passed into the realm of memory, I am revelling in the satisfaction of the success—scientific and otherwise—of such a delightful adventure.

Memories—intangible, yet how solid! Possessions of our very own! Something that cannot be taken from us, something to be taken out of the recesses of the mind, dusted over and enjoyed again and again!

To all gem lovers, I heartily commend a visit to Ceylon—the gem shop of the world.

Publications Recently Received

1952-53 Report of The Committee on The Measurement of Geologic Time

This is the latest in the series of annual reports issued by the Committee on the Measurement of Geologic Time of the Division of Earth Sciences (formerly the Division of Geology and Geography) of the National Research Council.

The contents include *Summary Report of the Committee for 1952-53,* by J. P. Marble, Chairman, pp. 1-21; Supplementary reports as follows: *Annotated Bibliography of Articles Related to the Measurement of Geologic Time,* compiled by J. P. Marble, pp. 22-130; *Abstracts of Papers Dealing with Geologic Time and Related Matters,* Presented before the 1953 Meeting of the American Geophysical Union, pp. 131-135; *Recent Work on Natural Variations in Isotope Ratios,* compiled by J. P. Marble, pp. 136-142; *Recent Analyses of Brazilian Radioactive* Minerals, pp. 143-153; *Status of Work on Determination of Geologic Age at the Geological Survey of Canada, June, 1953,* with other notes from Canada by S. C. Robinson and Sydney Abbey, pp. 154-156; and *Translation of Various Foreign* Language Papers, (Radioactive researches on rocks in Japan, III: radium contents of volcanic rocks in Japan (II); Determination of the geological age of two stony meteorites by the argon method; On the age of tektites; An attempt to apply the argon method to the determination of the age of minerals; The isotopic composition of leads and the age of the earth), pp. 157-186.

The 1952-53 REPORT OF THE COMMITTEE ON THE MEASUREMENT OF GEOLOGIC TIME may be obtained for $1.50. Send orders to National Academy of Sciences-National Research Council, Publications Office, 2101 Constitution Avenue, N.W., Washington 25, D.C.

Johnstone Minerals for The Chemical and Allied Industries

Written particularly for producers and consumers in ceramics, refractories, building materials, paints, and allied fields, "Minerals for the Chemical and Allied Industries" by Sydney J. Johnstone was published in June by John Wiley & Sons, 440 4th Ave., New York 16, N. Y.

Seventy-one chapters, each devoted to an individual mineral or metal, give concise information on properties, sources of supply, processing, metallurgy, and uses. Regarding uses the author writes with special attention to the specifications of particular industries. These detailed specifications show the mineral producer which standards are required to make a product most saleable on the best markets, while the sources of supply, grades, and similar details, are especially valuable for the user who requires substitutes when certain materials are in short supply.

Mr. Johnstone's career has been entirely devoted to the development and marketing of minerals and their products. A chemist and economic mineralogist, he was for over forty years connected with the Imperial Institute of London, serving as head of the Mineral Resources Department for over a decade. He was also head of the Commodities Intelligence Section of the Ministry of Economic Warfare in London.

"Minerals for the Chemical and Allied Industries" contains 692 pages and is priced at $11.50.

Calif. Special Report 37 Reissued

The unprecedented interest in uranium shown by the general public has prompted the Division of Mines to reissue its SPECIAL REPORT 37, Olaf P. Jenkins, Chief of the Division, announced Sept. 7, 1954.

The great demand for this publication, entitled ROSAMOND URANIUM PROSPECT, KERN COUNTY, CALIFORNIA, exhausted the first printing in less than eight months.

This report was prepared by George W. Walker of the U. S. Geological Survey as part of a study for the Atomic Energy Commission. New uranium discoveries in other parts of Kern County increased the usefulness of this publication as it serves to introduce the salient geologic features to persons interested in this new important area.

The author found small quantities of autunite, hydrous uranium and calcium phosphate, and another radioactive mineral not yet identified occurring in tuffaceous sedimentary rocks of the Rosamond formation of Miocene age at the Rosamond prospect, which is about 10 miles south of Mojave, Kern County, California, in the western Mojave Desert.

The autunite occurs principally as coatings on fractures and joint surfaces and, to a lesser extent, as disseminations in the tuffaceous rocks adjacent to faults. A waxy, reddish-brown to black radioactive mineral is found in small quantities on slickensided fault surfaces, associated with iron oxides and chlorite (?). The uranium minerals are erratically distributed over an area of about 15 acres. Assays of 12 samples indicate a uranium content ranging from 0.002 to 0.59 percent and an average content of slightly less than 0.08 percent uranium.

SPECIAL REPORT 37, which consists of 8 pages including photographs, maps, and sections, is priced at 25 cents. Copies may be purchased from the Division of Mines, Ferry Building, San Francisco, Calif.

Nininger — Minerals for Atomic Energy

Would-be uranium prospectors will soon have available all the information they need in looking for valuable atomic raw materials. Robert D. Nininger, Deputy Assistant Director for Exploration, Raw Materials Division, U.S. Atomic Energy Commission, tells all in MINERALS FOR ATOMIC ENERGY.

Containing information only recently developed as a result of the largest exploration program ever undertaken for a single metal, Mr. Nininger takes a hand in helping to compress a hundred and fifty or more years of normal exploration and discovery into a short ten or fifteen .Only from the sweat of man's brow in winning from the earth the basic raw material, uranium, can our brilliant scientific discoveries continue to provide us a means of defense and a more abundant life, he asserts.

From sites within a hundred miles of giant New York City to the high plateaus of Colorado, Americans are already looking, finding and successfully selling the products of their search.

Nininger has laid out clearly and comprehensively everything the budding prospector will want to know about atomic energy minerals, where they most likely can be found and how to go about finding, evaluating and profiting from them.

Uranium, thorium and beryllium are the principal materials discussed—but gold, silver, copper, vanadium, and many other metals found with deposits of atomic energy minerals increase the chances of a prospector's financial success and should help induce more Americans to become interested in the search.

Countless details from many far flung sources are included in MINERALS FOR ATOMIC ENERGY. From equipment like Geiger and Scintilation Counters to prices, markets, controls, laws and regulations both here and abroad, here is everything the prospector should know.

More than eleven thousand Americans wrote to the Atomic Energy Commission last year. Their questions ran everywhere from "how do I look for uranium," "how do I file a claim" to the most technical questions of identification, analysis of ores, and production techniques. There is no doubt that atomic energy is here to stay, and so is the opportunity for the "atomic prospector" to strike it rich. Mr. Nininger has now provided the means for many of us to try our hand. Published by D. Van Nostrand Company, 250 4th Ave., New York 3, N. Y. Price $7.50

Pitt and Quarry—The Nonmetallic Minerals

One of the fastest growing segments of our economy—the nonmetallic minerals industry—is pictured as a unit for the first time in a 16-page reprint from the 1954 edition of "Pit and Quarry Handbook," just issued.

Vitally important to the nation's most "basic" industries, this field provides huge quantities of more than 70 different minerals—the basic ingredients for construction (stone, cement, sand and gravel, gypsum, etc.), steelmaking and other metallurgy (fluxing stone and retractories), petroleum (drilling muds and filtration media), chemicals, fertilizers, glass, paper, paints, rubber, abrasive, food preservatives and many other fields and functions.

An eight-fold growth since 1900, has made the pit and quarry field second only to the skyrocketing oil and gas industry among all divisions of mining. In that same period our output of all natural raw materials (agricultural, game, forestry and mineral) only slightly more than doubled. Official forcasts indicate a continuing expansion of nonmetallic mineral production in the next half century.

Each year the pit and quarry field extracts considerably more tonnage than the combined total output of all coal and metal mines—making it by far the largest handler of loose bulk materials. Most of these are highly abrasive, resulting in extreme wear on machinery and equipment.

More than 60 different entries in the reprint discuss all the major non-metallic mineral products of pit and quarry and some of the fascinating minor ones (gem stones, rare minerals, meerschaum, peat, and the like). Latest available details on domestic output, and uses and other information are given.

Free copies may be had on request to John Peter Flynn, Director of Research and Promotion, Pit and Quarry Publications, 431 So. Dearborn St., Chicago 5, Ill.

National Prospector's Gazette

In this issue of R&M will be found a one page advertisement of the NATIONAL PROSPECTOR'S GAZETTE, a geological digest for the miner and lapidary. This publication is new to us but judging from the sample copy sent us, October, 1954, it is a most interesting journal. The subscription price is only $1 a year and the address is Bellflower, Calif.

The following letter, dated Oct. 7, 1954, is from its Editor, D. C. Miller:

"While we may be called a new competitive paper in the field, we do not feel that we are competitive with any other publication and we feel that we can do much help and assist the other publications. Our low dollar-a-year subscription rate results in subscriptions from 'luke-warm' hobbyists and beginners. In our columns, from time to time, you will find us listing or mentioning other publications in the field and encouraging our readers to subscribe to them, also. In fact, the October issue, copy of which will be sent you, lists many of the mining and lapidary publications now in print.

"We are doing everything to encourage and enlist new hobbyists in both the mining and lapidary fields and we are also endorsing and encouraging the organization of new clubs and societies. This we believe is good for the hobby.

"Anything that is good for the hobby will get our support and we invite you to let us know, at any time, if we can be of service to

you. This invitation is extended to you in the most friendly and cordial intentions. We consider your good publication the outstanding one in the field and it deserves the attention of every rockhound."

Ward's Geological Materials Catalog

Ward's Natural Science Est. Inc., P. O. Box 24, Beechwood Sta., Rochester 9, N. Y., have just issued their Geological Materials Catalog. No. 543. This is a beautifully illustrated publication 8½-10¾ inches in size, consisting of 84 pages. It covers rocks, fossils, minerals, geological, lapidary, petrographic, fluorescence and radioactive equipment.

Eastern Federation Convention

(Continued from page 562)

gems and the making of jewelry, as well as carrying a news telecast showing the uranium minerals display and the judges at work.

The broadcasting stations contributed dozens of spot announcements, remarks by Commentators and one public service program of 15 minutes featuring a discussion of mineralogy and lapidary work between the Commentator and the general convention chairman. Mutual Broadcasting System also carried a news cast over a nation wide hook up.

The Florida Power & Light Company contributed the use of an 18 foot display window in the heart of the downtown area showing a number of mineral specimens, cut stones and assorted lapidary equipment, together with a poster decribing the show at the Auditorium.

Featured at the show was the Atomic Energy Display of Uranium minerals, the Smithsonian display of Meteorites, the Agate handled silverware and large polished slabs of J. W. Anderson of Baltimore, Maryland and the Ingraham tourmalines.

The Newark Mineralogical Society won the annual trophy for the outstanding Society display, while Albert S. White of Flanders, New Jersey, received the cup for the best individual mineral display and Mrs. Betty Graham of Miami, Florida, the cup for the best display of faceted gems.

Fifteen Societies were represented at the annual meeting which accepted the application of The Boston Mineral Society as the 22nd member of the Eastern Federation.

Geode Industries Expand

Geode Industries (The Smiths), 411 W. Main St., New London, Iowa, sent us a note, as we were going to press, that they had expanded their business and now they will conduct most of their business from their new location, which is on U.S. Highway #34.

The Geode Industries specialize in geodes of all sizes, including geode ash trays and geode book ends. They have recently issued a new mounting Catalog.

Fossils

(Continued from page 609)

It will be observed that none of these uses of the word nor definition of it mention PETRIFICATION. Therefore we might consider that a fossil may or may not be petrified, it may be historic or prehistoric, organic or inorganic, extinct or living, but it must be preserved in the earth. In terms of business it might be likened to a "frozen asset."

Rosiclare Fluorite Mine is Closed

There will not be any more of the beautiful Fluorite specimens from southern Illinois available, however, I have a few choice collectors pieces left which I will sell at $5.00 and $10.00 each, postpaid. Also just three rare large museum specimens at $25.00 plus express, each. LAKE SUPERIOR AGATES, field run, average size 2 inches. Perfect for tumbling and 'Cabs.' 10 pounds for $15.-00, postpaid.

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128 pages — 60c

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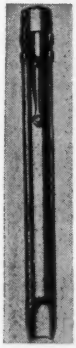

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Nice to be in Maryland once more. And it surely was a pleasure to meet old friends and make new ones at the well staged Miami Show.

Yes, I collected a few things in Alaska the past summer. Including a Shungnak River Jade Boulder roughly 12 by 20 by 30 inches. It is still in Seattle. Kind of a White Elephant. Looks good on the outside. What will it look like when sliced? ? That is my gamble.

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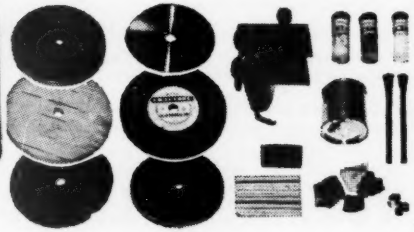

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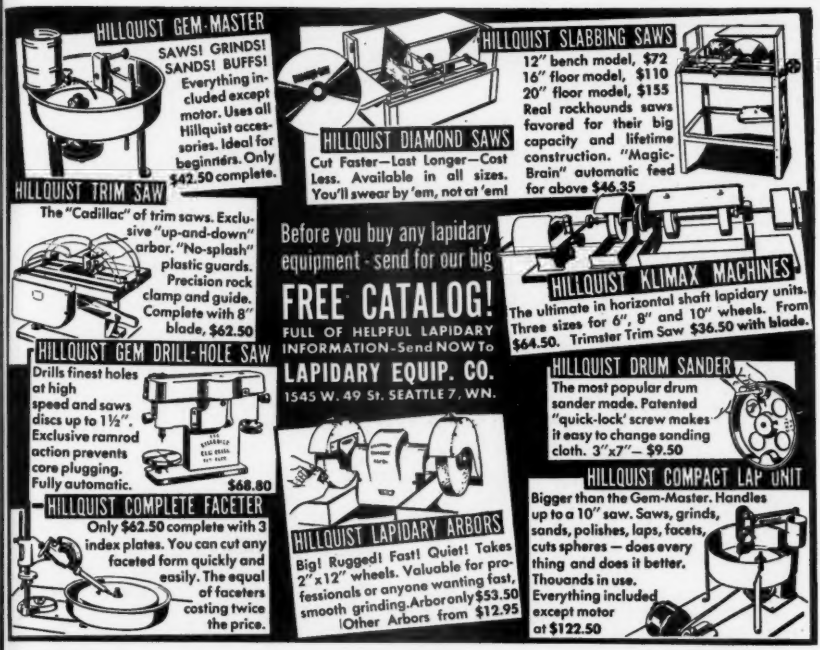
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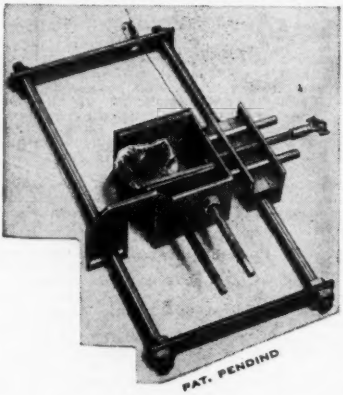

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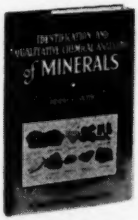

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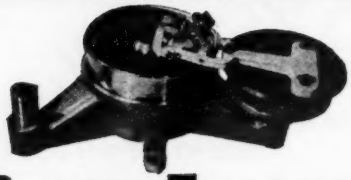

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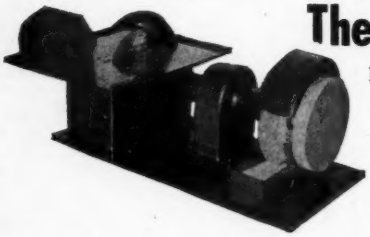

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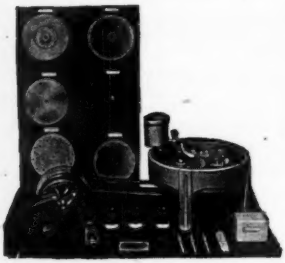

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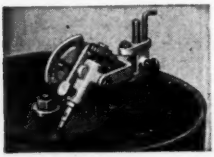

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MINERALS

Scott's Rose Quartz Co.—Rose Quartz—also Black Hills Rock Specimens of many kinds and colors, for Rock Gardens, Cabinets etc. Boxes 24 Rock Specimens—$1.25; 18—90c; 15—55c; postpaid. Send 3c stamp for Price List. 1020 Custer Ave., Custer, South Dakota.

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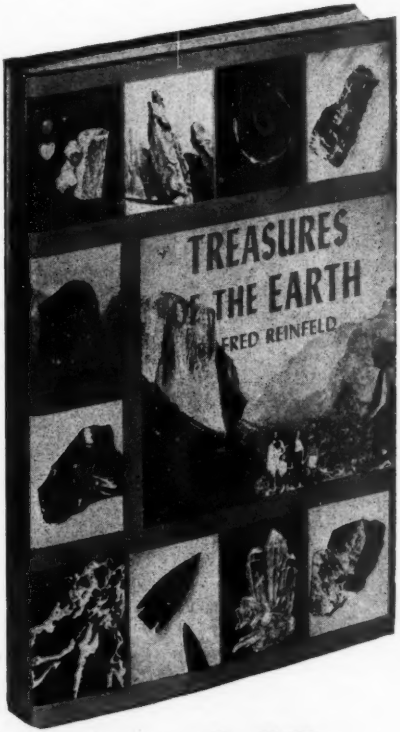

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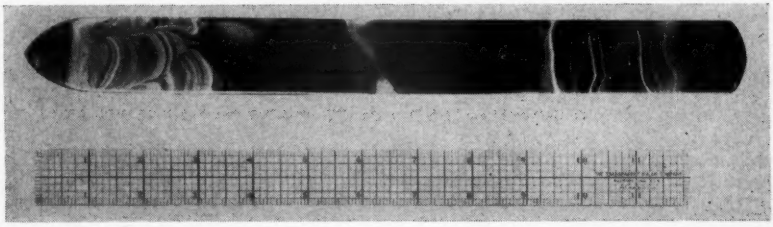

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